RCRA RECORD CENTER
Infiling Cover Sheet

NAME Jon Rinehart MAIL CODE

PHONE DATE

EPA I.D.#	FACILITY NAME	TYPE FILE
TXD008097529	Star Enter.	Permit

Rinehart

SEP 1 5 REC'D

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

September 11, 1995

Mr. K. R. Hall
Plant Manager
Star Enterprise
P. O. Box 712
Port Arthur, TX 77640-0712

Re: Interim Corrective Measure
Installation of Protective Cover-ARCHON Areas
TNRCC Industrial Solid Waste Registration No. 30121
TNRCC Hazardous Waste Permit No. HW-50188
EPA ID No. TXD008097529

Dear Mr. Hall:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed the Star Enterprise proposal to install a protective cover in all or part of the ten (10) stabilized Archon Areas identified as follows:

Area T-1, Reservoir No. 10
Area T-2, No. 10 Disposal Reservoir
Area T-3, No. 2 Drainage Canal
Area T-4, No. Reservoir No. 11
Area T-5, No. Reservoir No. 14
Area T-6, No. Reservoir No. 6
Area T-7, No. Port Neches Canal
Area T-8, No. Spent Clay Fill Area
Area T-9, Reservoir No. 10, NW Corner C2 Cell
Area T-10, South PCP Equalization Basin

The proposal was presented in the following four documents prepared by ENSR Inc. on behalf of Star Enterprises in Port Arthur, Texas:

Closure Approach - Reservoir No. 6, November 1993
Archon Supplemental Information, May 1994
Archon Reservoir Closure Risk Assessment and Supplemental D Report, October 1994, and
Revised Archon Reservoir Closure Risk Assessment and Supplement Data Report, March 1995.

It is the TNRCC's understanding, based on the data submitted in these reports, that each of the 10 areas contain stabilized non-hazardous refinery wastes that would be considered listed hazardous waste if actively managed, but are considered non-hazardous because of their placement prior to the hazardous waste listing date. (Note that excavated waste moved to another location could be subject to land disposal restrictions.) Analytical results collected from the 10 areas suggest that the stabilized waste does not produce leachable concentrations of hazardous constituents in excess of the Risk Reduction Standard No. 2 ground-water protection MSCs adjusted for Total Dissolved Solids exceeding 10,000 mg/L.

The TNRCC understands that the protective cover is being installed in the area to promote the growth of a vegetative cover and to control rainfall, and is not being constructed to meet risk based cleanup goals. Also, the cover will be comprised of a 1.0 ft. clay cover with 6 inches of topsoil. The TNRCC approves the proposal for placement of the cover as an Interim Corrective Stabilization Measure Workplan. Once the cap(s) has been constructed, please submit a Stabilization Report.

As stated above, the TNRCC considers placement of the cap as an interim corrective measure. Approval of this activity should not be considered final closure of the RFI Units and should not be considered fulfillment of ongoing RFI activities. Subsequent corrective action activities may include additional investigation, remediation or long-term ground-water monitoring in the vicinity of the covered Archon Areas in order to fulfill the facility's HSWA Corrective Action obligations.

Eventhough analytical results appear to have achieved Standard No. 2 levels, be aware that since a stabilization agent was used as a control measure, final closure will be required under the Risk Reduction Standard No. 3. Star has addressed most if not all of the additional reporting requirements under Risk Reduction Standard No. 3 in the four reports; however, public notice and deed recordation will be required before a final corrective measure can be approved.

Although this letter does not provide final closure for the areas at this time, it is possible that additional corrective action measures may not be required.

An original and one (1) copy of future correspondence should be sent to the TNRCC's Corrective Action Team. Also, please submit one (1) copy to TNRCC's Region 10 Office, Susan Kelly, 3870 Eastex Freeway, Suite #110, Beaumont, TX 77703-1830.

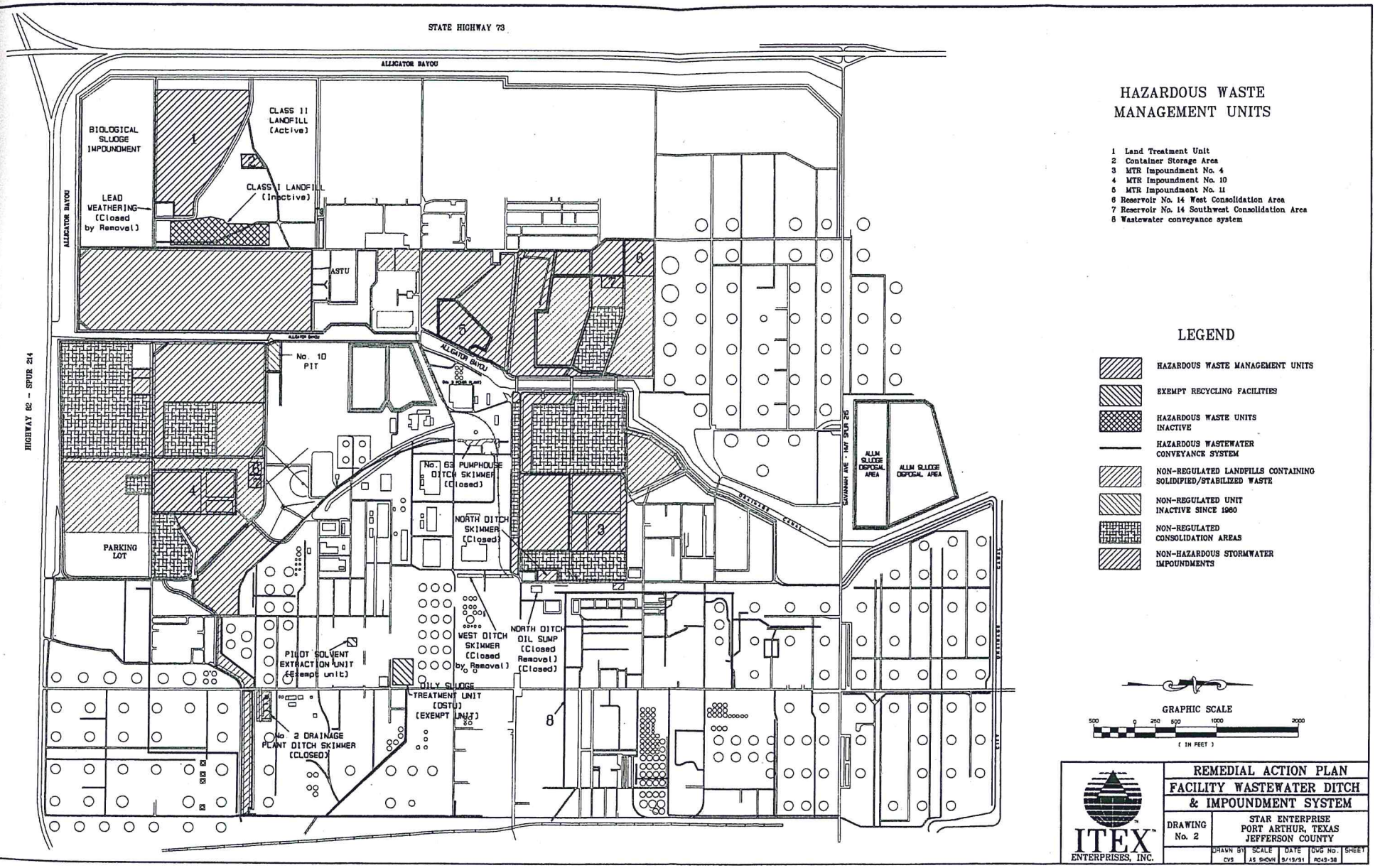
If you have any questions or wish to discuss the contents of this letter please contact me at (512) 293-2333, Mail Code 127.

Sincerely,

Ray S. Risner, Supervisor
Corrective Action Team
Corrective Action Section
Industrial and Hazardous Waste Division

RSR:JC:jo

cc: Tom Beck, Senior Program Manager, ENSR Corp, 3000 Richmond Avenue, Houston, Texas 77090
Bill Gallagher, EPA Region VI, Dallas
Susan Kelly, TNRCC Region 10, Beaumont
Vahab Haghighatian, Permits Section
Ata Ur Rahman, Permits, Groundwater Team
Tennie Larson, Corrective Action Section (CA 614)



HAZARDOUS WASTE MANAGEMENT UNITS

1 Land Treatment Unit
2 Container Storage Area
3 MTR Impoundment No. 4
4 MTR Impoundment No. 10
5 MTR Impoundment No. 11
6 Reservoir No. 14 West Consolidation Area
7 Reservoir No. 14 Southwest Consolidation Area
8 Wastewater conveyance system

LEGEND

- HAZARDOUS WASTE MANAGEMENT UNITS
- EXEMPT RECYCLING FACILITIES
- HAZARDOUS WASTE UNITS INACTIVE
- HAZARDOUS WASTEWATER CONVEYANCE SYSTEM
- NON-REGULATED LANDFILLS CONTAINING SOLIDIFIED/STABILIZED WASTE
- NON-REGULATED UNIT INACTIVE SINCE 1980
- NON-REGULATED CONSOLIDATION AREAS
- NON-HAZARDOUS STORMWATER IMPOUNDMENTS

GRAPHIC SCALE

500 0 250 500 1000 2000

(IN FEET)

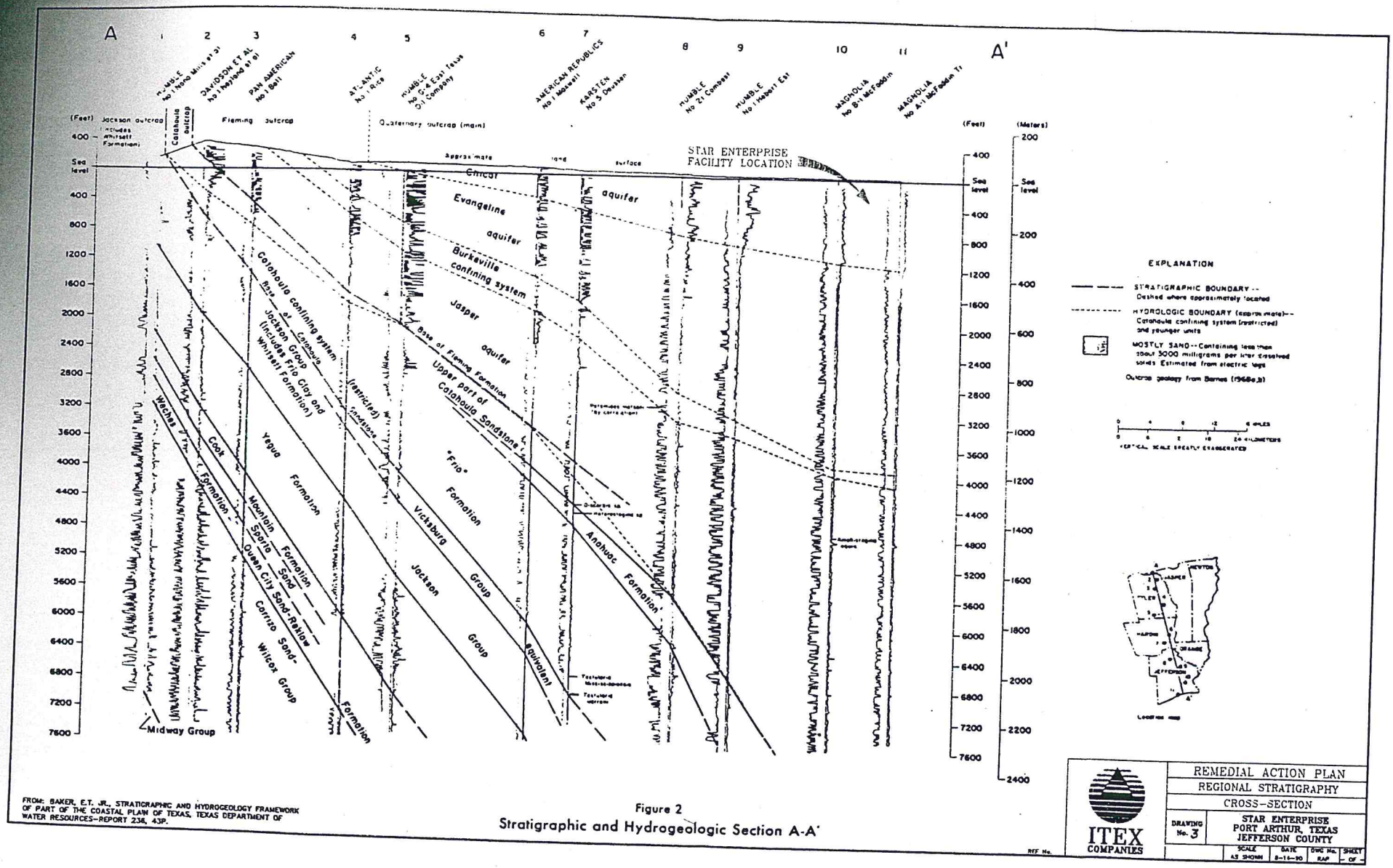
ITEX ENTERPRISES, INC.

REMEDIAL ACTION PLAN
FACILITY WASTEWATER DITCH & IMPOUNDMENT SYSTEM

DRAWING No. 2

STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY

DRAWN BY	SCALE	DATE	DWG No.	SHEET
CVS	AS SHOWN	9/19/91	R045-38	



FROM: BAKER, E.T. JR., STRATIGRAPHIC AND HYDROGEOLOGY FRAMEWORK OF PART OF THE COASTAL PLAIN OF TEXAS, TEXAS DEPARTMENT OF WATER RESOURCES–REPORT 238, 43P.

Figure 2
Stratigraphic and Hydrogeologic Section A-A'

ITEX COMPANIES

REMEDIAL ACTION PLAN
REGIONAL STRATIGRAPHY
CROSS–SECTION

DRAWING No. 3

STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY

SCALE AS SHOWN | DATE 8-16-90 | DWG No. RAP | SHEET – OF –

REF No.

PLANT SOUTH

A

PLANT NORTH

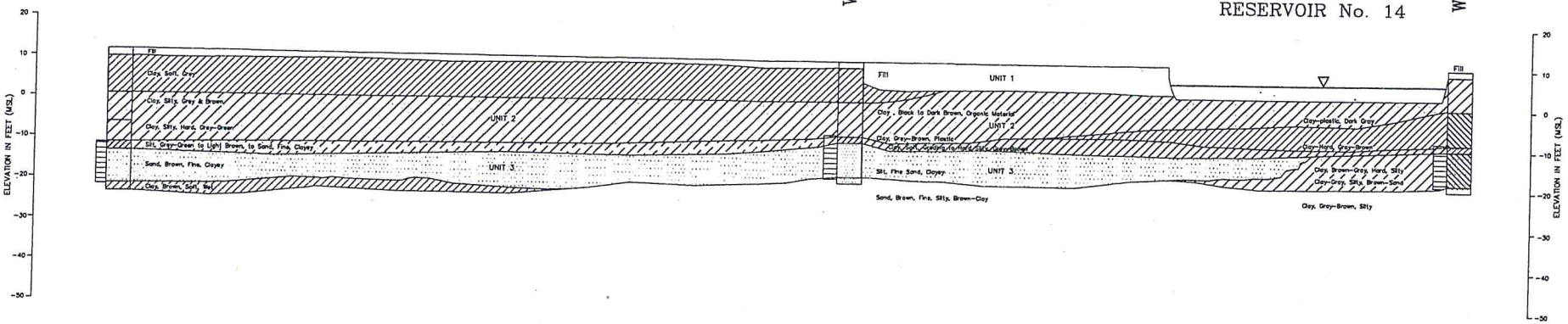
A^1

WELL-3

WELL-2

WELL-1

RESERVOIR No. 14



LEGEND

- SCREEN INTERVAL
- FILL
- CLAY
- CLAY, SILTY TO SANDY
- SAND
- SURFACE IMPOUNDMENT FLUID LEVEL (MSL)
- WELL-3 — MONITOR WELL LOCATION (WELLS INSTALLED BY GERAGHTY & MILLER)

NOTE VERTICAL EXAGGERATION = 10X

DATA RELATING TO SUBSURFACE CONDITIONS HAVE BEEN OBTAINED AT BORING LOCATIONS ONLY. ACTUAL CONDITIONS BETWEEN BORINGS MAY DIFFER FROM INFERRED PROFILE SHOWN HERE.

THIS CROSS SECTION DEVELOPED FROM BORING LOGS ORIGINALLY SUBMITTED IN THE TEXACO/STAR RCRA PART B PERMIT APPLICATION, VOLUME III, SECTION V, 1985

ITEX COMPANIES

CLOSURE PLAN

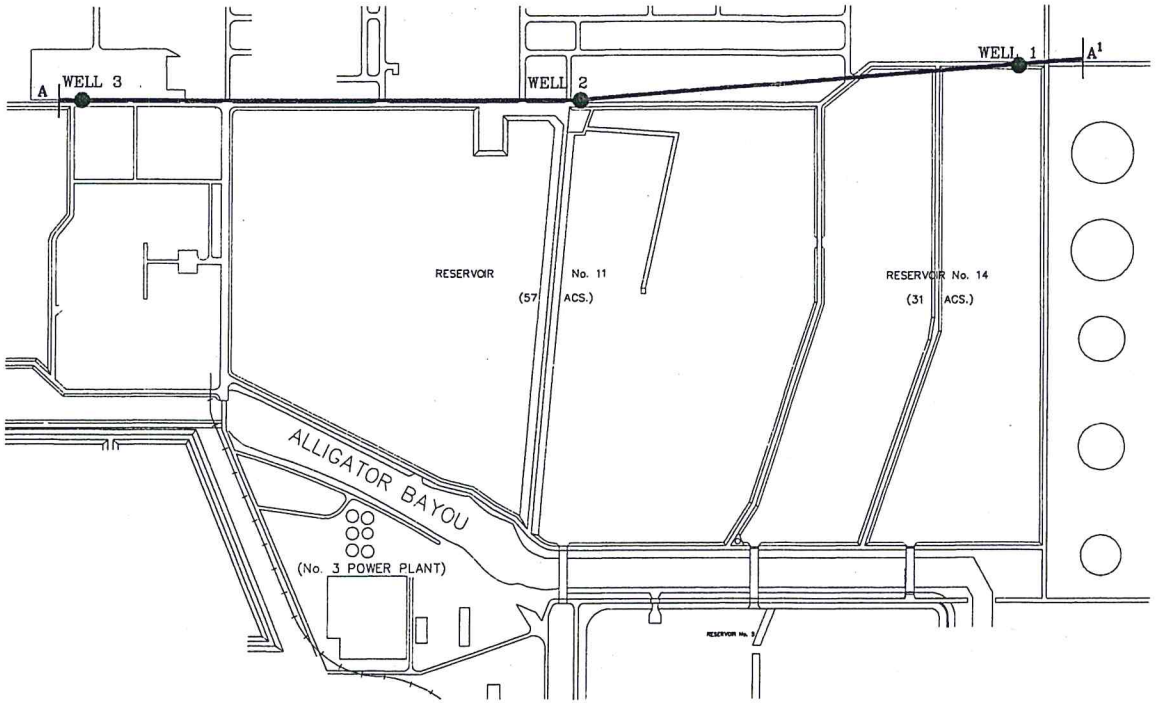
WEST & SOUTHWEST CONSOLIDATION AREA

GEOLOGICAL CROSS SECTION

DRAWING No. 4

STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY

SCALE	DATE	FILE No.	SHEET
NTS	10-15-90	049-R22	5



LEGEND

● EXISTING WELL OR MONITOR WELL

A ——— A¹ GEOLOGIC CROSS SECTION

REFERENCE:
THIS DRAWING ADOPTED FROM:
INTERNATIONAL TECHNOLOGY CORPORATION
RFI WORKPLAN, VOLUME 1, FIGURE 11-3
AUGUST 12, 1988

GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.

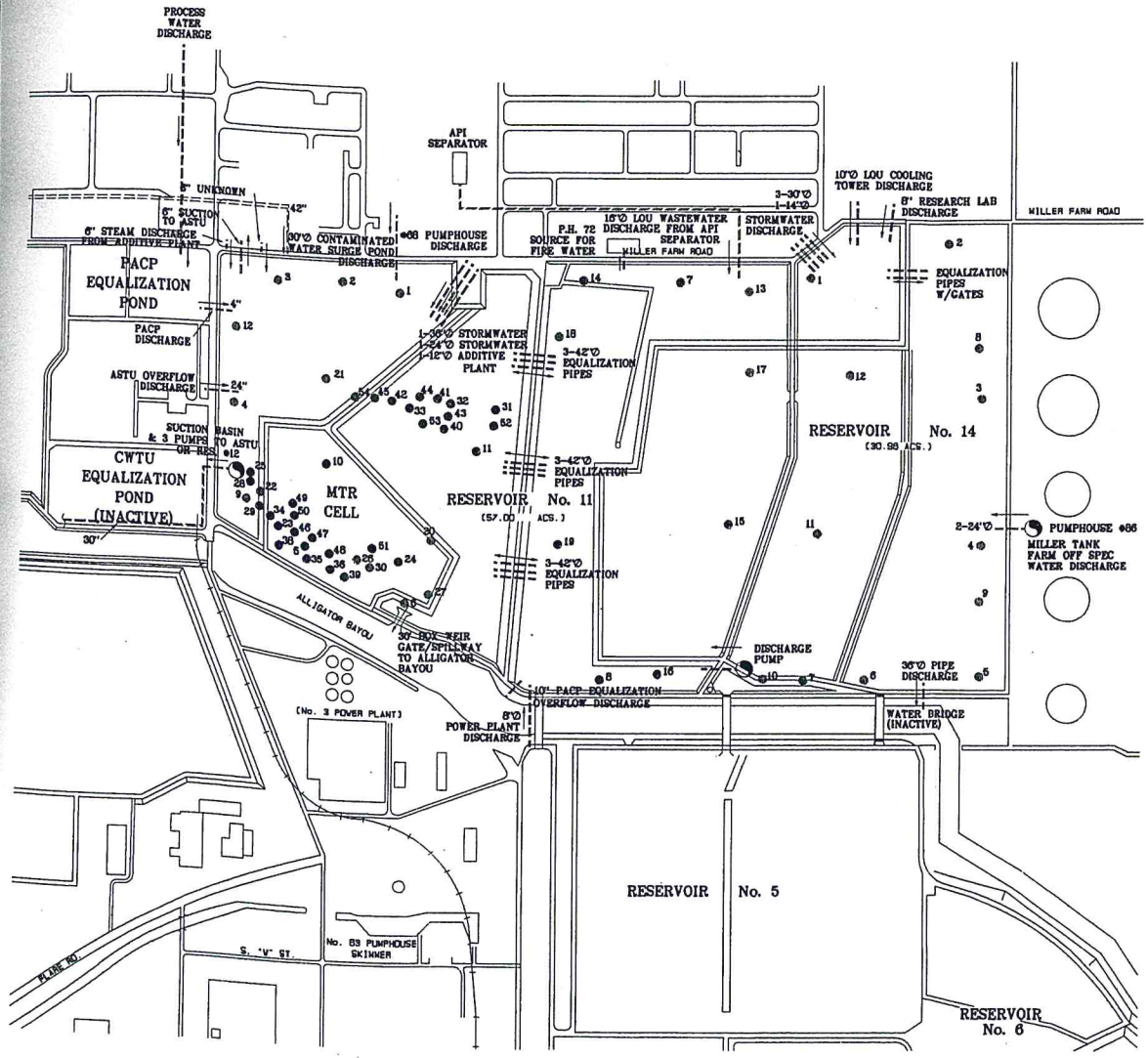
ITEX COMPANIES

REMEDIAL ACTION PLAN
MONITOR WELL LOCATIONS
RESERVOIR Nos. 11 & 14

DRAWING No. 5

STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY

SCALE	DATE	FILE No.	SHEET
AS SHOWN	8-1-90	049-R26	5



	RESERVOIR No. 11 SAMPLE I.D.	TC BENZENE CONCENTRATION IN SLUDGE (ppm)	
1	189-R11WC-01S	0.12	JUNE 12, 1990
2	189-R11WC-02S	0.06	JUNE 12, 1990
3	189-R11WC-03S	0.098	JUNE 12, 1990
4	189-R11WC-04S	0.15	JUNE 12, 1990
5	189-R11WC-05S	0.02	JUNE 12, 1990
6	189-R11WC-06S	0.13	JUNE 12, 1990
7	189-R11WC-07	2.1	JUNE 12, 1990
8	189-R11WC-08	0.52	JUNE 12, 1990
9	191-R11WC-09S	0.485	AUGUST 14, 1990
10	191-R11WC-10S	2.11	AUGUST 14, 1990
11	191-R11WC-11S	1.62	AUGUST 14, 1990
12	191-R11WC-12S	0.202	AUGUST 14, 1990
13	191-R11WC-13S	4.09	AUGUST 14, 1990
14	191-R11WC-14S	3.20	AUGUST 14, 1990
15	191-R11WC-15S	3.34	AUGUST 14, 1990
16	191-R11WC-16S	1.32	AUGUST 14, 1990
17	191-R11WC-17	3.54	AUGUST 14, 1990
18	191-R11WC-18	1.26	AUGUST 14, 1990
19	191-R11WC-19	1.63	AUGUST 14, 1990
20	191-R11WC-20	0.31	AUGUST 14, 1990
21	191-R11WC-21	0.44	AUGUST 14, 1990
22	191-R11WC-22S	0.47	AUGUST 22, 1990
23	191-R11WC-23S	0.92	AUGUST 22, 1990
24	191-R11WC-24S	1.24	AUGUST 22, 1990
25	191-R11WC-25S	0.71	AUGUST 23, 1990
26	191-R11WC-26S	0.28	AUGUST 23, 1990
27	191-R11WC-27S	0.82	AUGUST 23, 1990
28	191-R11WC-28S	0.79	AUGUST 24, 1990
29	191-R11WC-29S	1.24	AUGUST 24, 1990
30	191-R11WC-30S	0.25	AUGUST 24, 1990
31	191-R11WC-31S	0.52	AUGUST 27, 1990
32	191-R11WC-32S	0.68	AUGUST 27, 1990
33	191-R11WC-33S	1.51	AUGUST 27, 1990
34	191-R11WC-34S	1.48	AUGUST 27, 1990
35	191-R11WC-35S	0.95	AUGUST 27, 1990
36	191-R11WC-36S	4.56	AUGUST 27, 1990
37	191-R11WC-37S	6.23	AUGUST 28, 1990
38	191-R11WC-38S	6.84	AUGUST 28, 1990
39	191-R11WC-39S	4.76	AUGUST 28, 1990
40	191-R11WC-40S	6.61	AUGUST 28, 1990
41	191-R11WC-41S	7.72	AUGUST 28, 1990
42	191-R11WC-42S	11.8	AUGUST 28, 1990
43	191-R11WC-43S	7.11	AUGUST 29, 1990
44	191-R11WC-44S	3.96	AUGUST 29, 1990
45	191-R11WC-45S	7.36	AUGUST 29, 1990
46	191-R11WC-46S	6.26	AUGUST 29, 1990
47	191-R11WC-47S	9.27	AUGUST 29, 1990
48	191-R11WC-48S	19.3	AUGUST 29, 1990
49	191-R11WC-49S	3.50	AUGUST 30, 1990
50	191-R11WC-50S	6.76	AUGUST 30, 1990
51	191-R11WC-51S	5.00	AUGUST 30, 1990
52	191-R11WC-52S	5.12	AUGUST 30, 1990
53	191-R11WC-53S	4.83	AUGUST 30, 1990
54	191-R11WC-54S	0.50	AUGUST 30, 1990

	RESERVOIR No. 11 LOCATION No.	TC BENZENE CONCENTRATION IN WATER (ppm)	
1	189-R11 WC-01W	0.43	JUNE 11, 1990
2	189-R11 WC-02W	0.42	JUNE 11, 1990
3	189-R11 WC-03W	0.42	JUNE 11, 1990
4	189-R11 WC-04W	0.42	JUNE 11, 1990
5	189-R11 WC-05W	0.44	JUNE 11, 1990
6	189-R11 WC-06W	0.45	JUNE 11, 1990
7	189 R11-WC-07W	LO	JUNE 14, 1990
8	189-R11 WC-08W	0.77	JUNE 14, 1990

	RESERVOIR No. 14		
1	189-R14 WC-01	0.062	JUNE 14, 1990
2	189-R14 WC-02	0.015	JUNE 14, 1990
3	189-R14 WC-03	0.056	JUNE 14, 1990
4	189-R14 WC-04	0.014	JUNE 14, 1990
5	189-R14 WC-05	0.039	JUNE 14, 1990
6	189-R14 WC-06	0.20	JUNE 14, 1990
7	189-R14 WC-07	1.8	JUNE 14, 1990
8	191-R14 WC-02S	0.03	AUGUST 14, 1990
9	191-R14 WC-09S	(0.01	AUGUST 14, 1990
10	191-R14 WC-10S	0.06	AUGUST 14, 1990
11	191-R14 WC-11S	0.10	AUGUST 14, 1990

	RESERVOIR No. 14		
1	189R14-WC-01W	(0.005	JUNE 14, 1990
2	189R14-WC-02W	(0.005	JUNE 14, 1990
3	189R14-WC-03W	(0.005	JUNE 14, 1990
4	189R14-WC-04W	(0.005	JUNE 14, 1990
5	189R14-WC-05W	(0.005	JUNE 14, 1990
6	189R14-WC-06W	(0.005	JUNE 14, 1990
7	189R14-WC-07W	0.16	JUNE 14, 1990

LEGEND

TOXICITY CHARACTERISTIC (TC) BENZINE CONCENTRATION IN SLUDGE

●33 =)0.5 ppm

●40 = (0.5 ppm

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)

ITEX ENTERPRISES, INC.

REMEDIAL ACTION PLAN

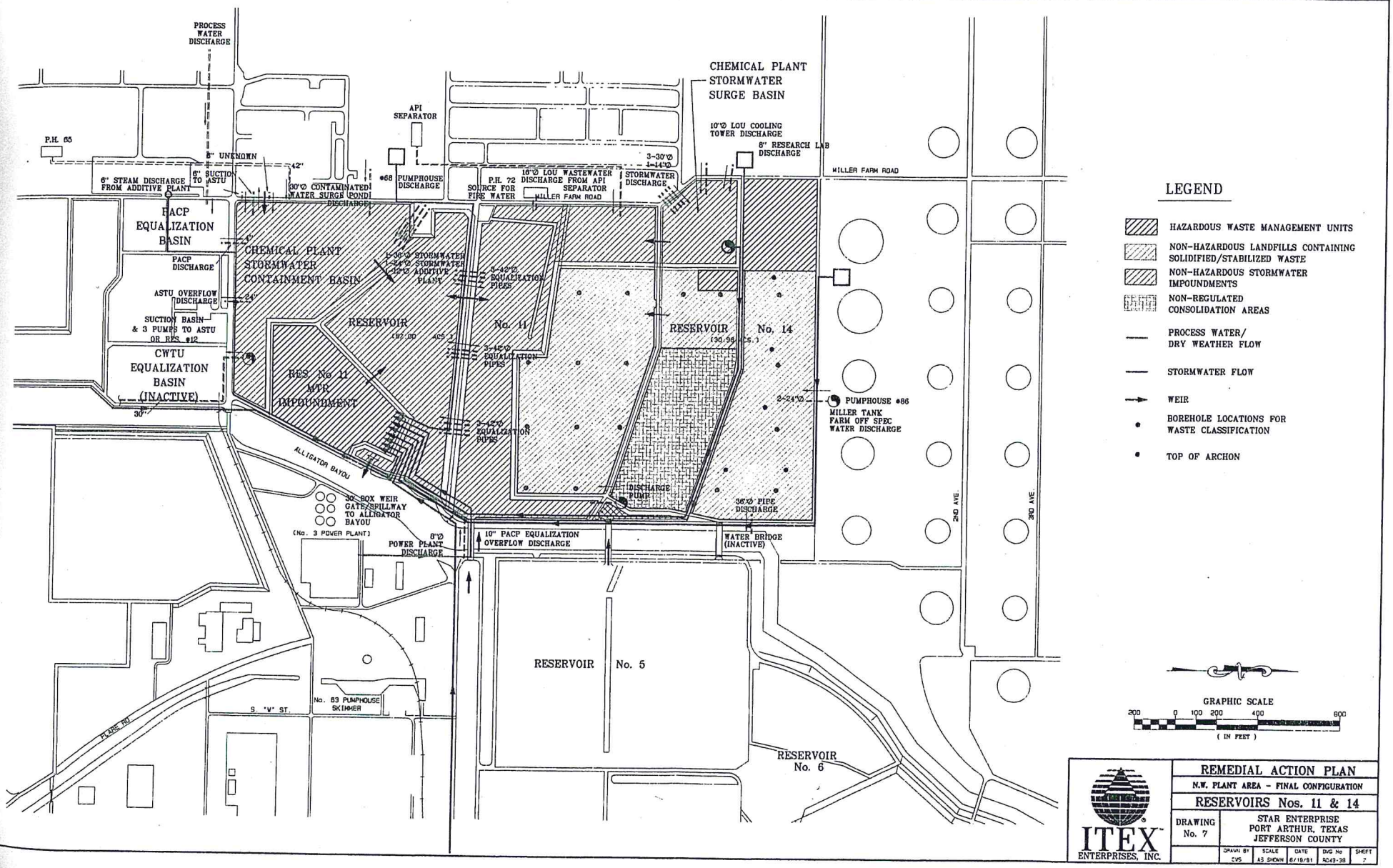
WASTE CHARACTERIZATION SAMPLE LOCATIONS

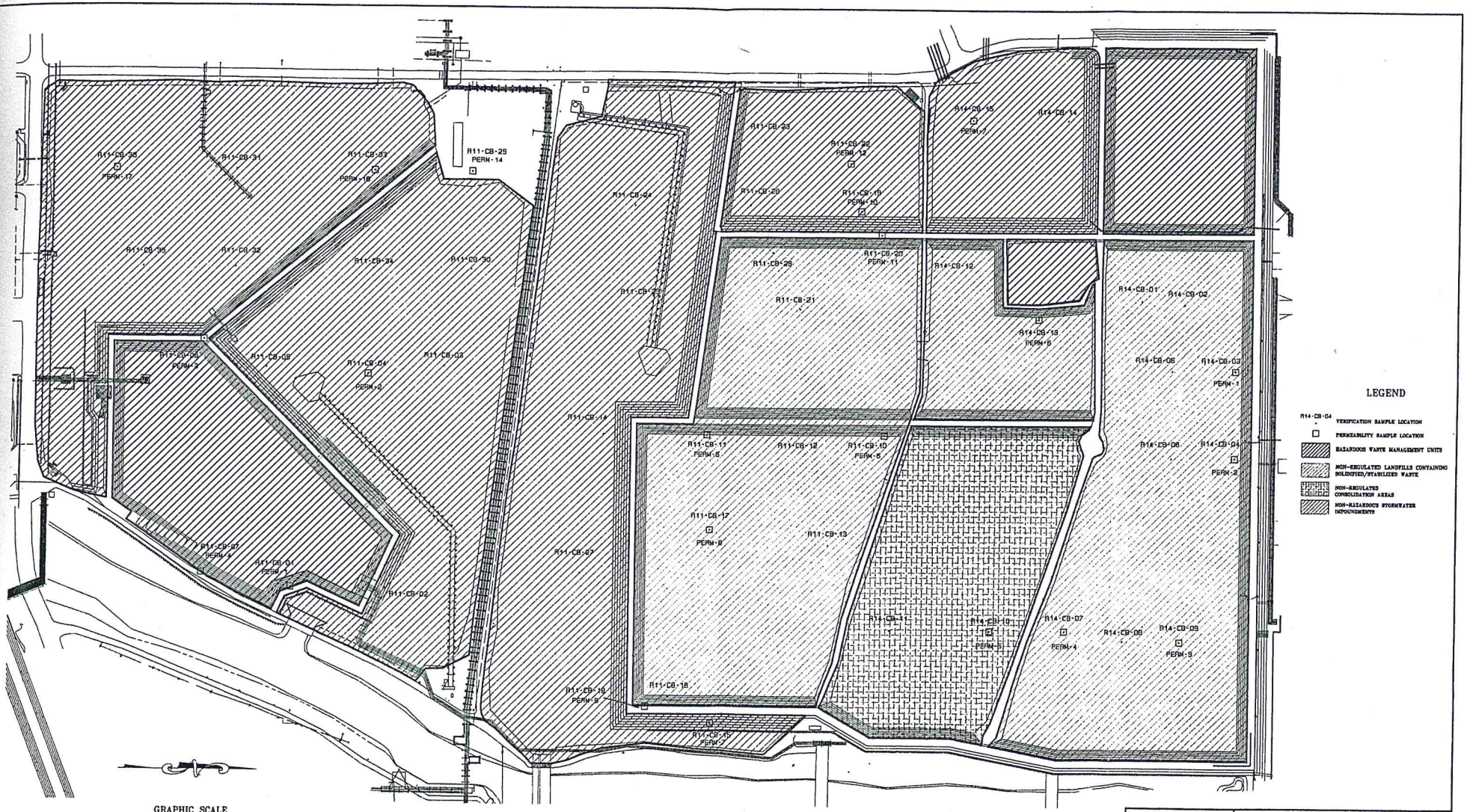
RESERVOIRS Nos. 11 & 14

DRAWING No. 6

STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY

DRAWN BY	SCALE	DATE	DWG No	SHEET
CVS	AS SHOWN	8/15/91	R049-40	3


PROCESS WATER DISCHARGE
CHEMICAL PLANT STORMWATER SURGE BASIN
API SEPARATOR
10'Ø LOU COOLING TOWER DISCHARGE
8" RESEARCH LAB DISCHARGE
P.H. 65
8" UNKNOWN
6" STEAM DISCHARGE FROM ADDITIVE PLANT
6" SUCTION TO ASTU
30'Ø CONTAMINATED WATER SURGE POND DISCHARGE
#68 PUMPHOUSE DISCHARGE
P.H. 72 SOURCE FOR FIRE WATER
16'Ø LOU WASTEWATER DISCHARGE FROM API SEPARATOR
STORMWATER DISCHARGE
MILLER FARM ROAD
3-30'Ø
1-14'Ø
FACP EQUALIZATION BASIN
CHEMICAL PLANT STORMWATER CONTAINMENT BASIN
1-36'Ø STORMWATER
1-24'Ø STORMWATER
12'Ø ADDITIVE PLANT
3-42'Ø EQUALIZATION PIPES
FACP DISCHARGE
ASTU OVERFLOW DISCHARGE
SUCTION BASIN & 3 PUMPS TO ASTU OR RES #12
RESERVOIR No. 11
(82.00 MSL)
RESERVOIR No. 14
(30.96 MSL)
CWTU EQUALIZATION BASIN (INACTIVE)
RES. No. 11 MTR IMPOUNDMENT
3-42'Ø EQUALIZATION PIPES
2-24'Ø
#86 PUMPHOUSE
MILLER TANK FARM OFF SPEC WATER DISCHARGE
ALLIGATOR BAYOU
30' BOX WEIR GATE SPILLWAY TO ALLIGATOR BAYOU
(No. 3 POWER PLANT)
8'Ø POWER PLANT DISCHARGE
10" FACP EQUALIZATION OVERFLOW DISCHARGE
DISCHARGE PUMP
36'Ø PIPE DISCHARGE
WATER BRIDGE (INACTIVE)
2ND AVE
3RD AVE
RESERVOIR No. 5
RESERVOIR No. 6
S. 'W' ST.
No. 83 PUMPHOUSE SKIMMER
PLANK RD
LEGEND
HAZARDOUS WASTE MANAGEMENT UNITS
NON-HAZARDOUS LANDFILLS CONTAINING SOLIDIFIED/STABILIZED WASTE
NON-HAZARDOUS STORMWATER IMPOUNDMENTS
NON-REGULATED CONSOLIDATION AREAS
PROCESS WATER/ DRY WEATHER FLOW
STORMWATER FLOW
WEIR
BOREHOLE LOCATIONS FOR WASTE CLASSIFICATION
TOP OF ARCHON
GRAPHIC SCALE
200 0 100 200 400 600
(IN FEET)
ITEX ENTERPRISES, INC.
REMEDIAL ACTION PLAN
N.W. PLANT AREA - FINAL CONFIGURATION
RESERVOIRS Nos. 11 & 14
DRAWING No. 7
STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY
DRAWN BY CVS
SCALE AS SHOWN
DATE 6/18/91
DWG No R243-38
SHEET 7



ITEX™ ENTERPRISES, INC.

REMEDIAL ACTION PLAN

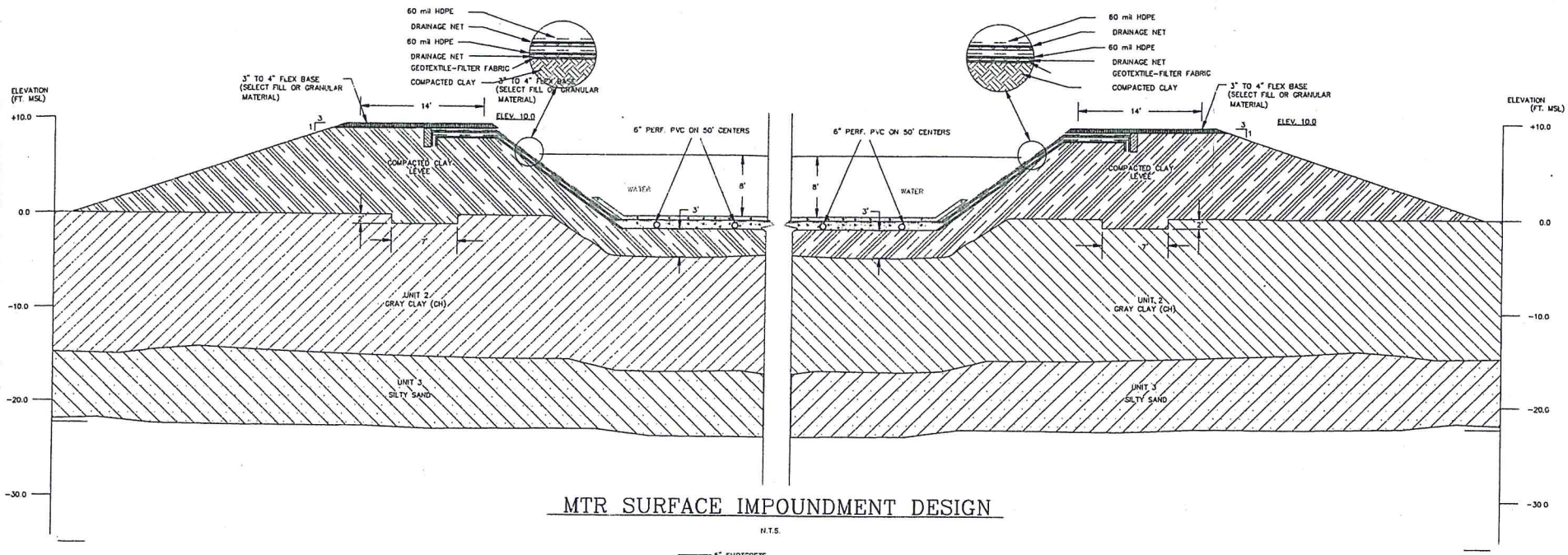
VERIFICATION AND PERMEABILITY LOCATION

RESERVOIR Nos. 11 & 14

DRAWING No. 8

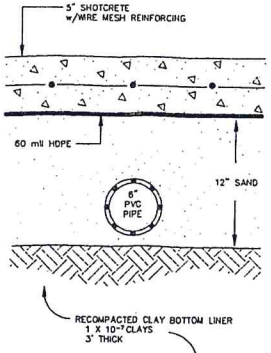
STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY

DRAWN BY	SCALE	DATE	DWG No.	SHEET
J.A.C	AS SHOWN	7/8/91	RD45-48	



MTR SURFACE IMPOUNDMENT DESIGN

N.T.S.



GUNITE LINER SYSTEM FOR MTR CELLS

LEGEND

UNIFIED SOIL CLASSIFICATION

SM --SILTY SANDS, POORLY GRADED SAND SILT MIXTURES

CL --INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, SANDY CLAYS, SILTY CLAYS

ML --INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS WITH SLIGHT PLASTICITY

ITEX COMPANIES

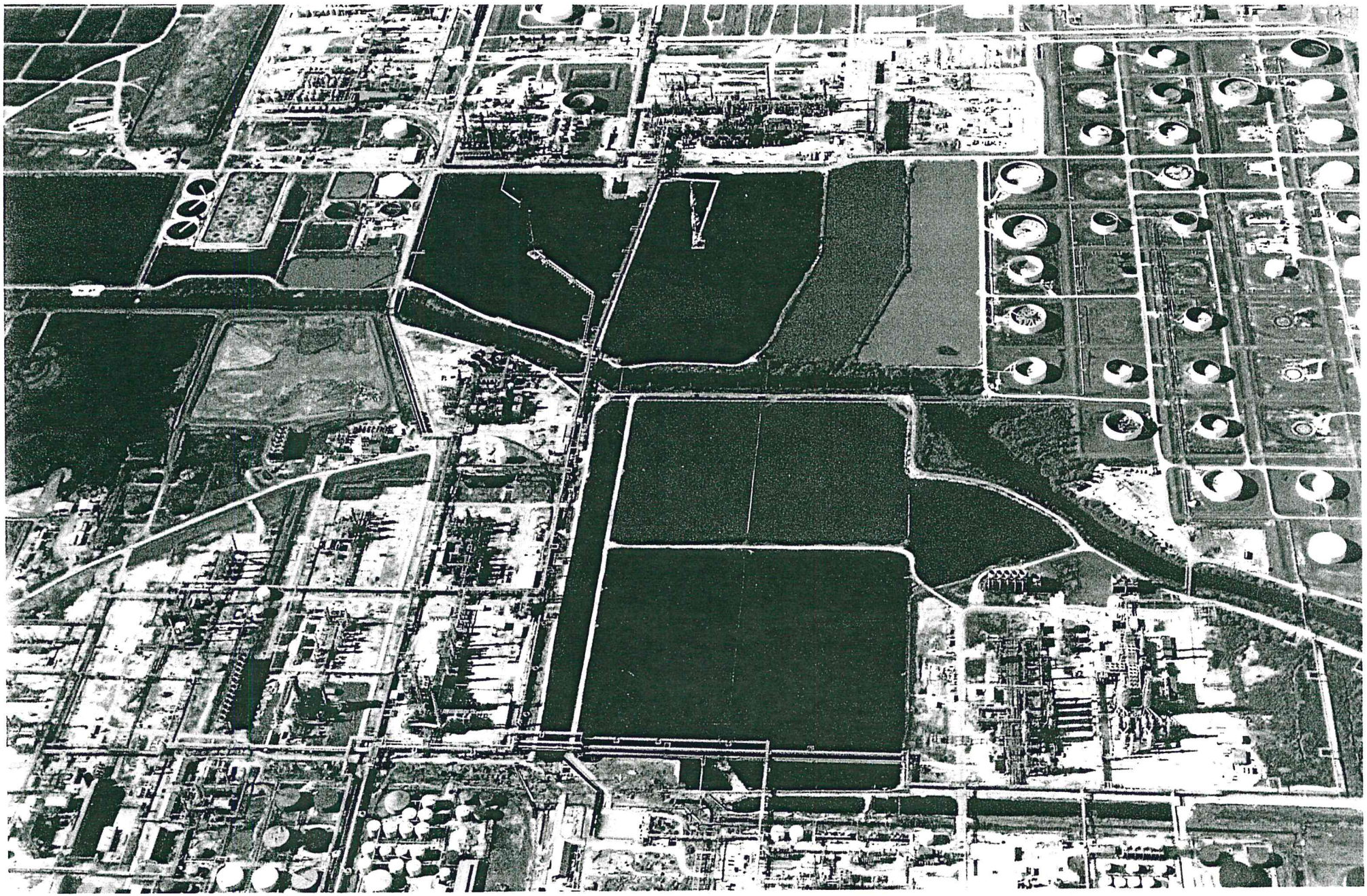
REMEDIAL ACTION PLAN
MTR CELL CONSTRUCTION

DRAWING No. 9

STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY

SCALE	DATE	FILE No.	SHEET
NTS	8-3-90	049-R36	

STAR ENTERPRISE - PORT ARTHUR PLANT



TEX COMPANIES

NORTHWEST PLANT AREA

MAR 0 3 1993

P 483 657 359

L. T. Townsend, Manager P.A. Area
Star Enterprise
P.O. Box 712
Port Arthur, TX 77641-0712

Dear Mr. Townsend:

On March 29, 1990, the Toxicity Characteristic (TC) Rule was promulgated. This ruling states that all newly regulated land disposal units must submit Part B permit applications no later than September 25, 1991 (permitted facilities by March 29, 1991). Land Disposal facilities or units newly regulated as a result of the TC rule must meet the minimum technology requirements of sections 3004(o) and 3015. Surface impoundments must comply with the retrofitting requirements in section 3005(j)(6)(A), which require the owner or operator of a newly regulated surface impoundment to retrofit that impoundment four years from the date of promulgation of the additional listings or characteristics, that made it subject to regulation. Thus, surface impoundments that became regulated because of the TC need to meet the minimum technology requirements on March 29, 1994. Other existing land disposal units (besides surface impoundments) that already contained wastes that exhibit the TC will not require retrofitting unless they are expanded or are replacement units.

The records kept by the Environmental Protection Agency (EPA) indicate that your facility has newly regulated land disposal units because of the TC. Please provide the following information regarding the status of your facility to EPA no later than 5 (five) days after the receipt of this letter:

1) Is your facility planning to close the impoundments and convert to tanks, clean close the unit, or retrofit the units?

2) Has your facility submitted a variance to the retrofitting requirements for surface impoundments? If so, when, and to what agency (State or EPA)? Submit a copy of the dated transmittal letter for the request.

3) Please provide a brief status report on the activities being carried out in these units. The report shall include the status of the closure plans, waste acceptance into the unit.

Expedient replies to this information are needed, therefore you may fax your response to our regional offices at (214) 655-6460 (fax). If you have any questions on the information needed please call Michelle Peace of my staff at (214) 655-7430.

Sincerely,

William K. Honker, P.E.
Chief, RCRA Permits Branch

bcc: Neleigh (6H-PN) Gallagher (6H-PL)

6H-PT:PEACE:mrp/sb:6792:J\U\S\6H-PT\2TCMTR.LTR:FILE CODE:_____

6H-PT
KING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAR 0 3 1993

Certified Mail: Return Receipt Requested

L. T. Townsend, Manager P.A. Area
Star Enterprise
P.O. Box 712
Port Arthur, TX 77641-0712

Dear Mr. Townsend:

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Sincerely,

William K. Honker, P.E.
Chief, RCRA Permits Branch

MP

StarEnterprise

L T Townsend
Manager
Port Arthur Area

P O Box 712
Port Arthur TX 77641 0712
409 989 7001

March 9, 1993

Re: Toxicity Characteristic (TC) Rule
Regulated Units
EPA I.D. No. TXD008097529
Permit No. HW-50188-00
ENV 1630

P 251 304 793
CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Mr. William K. Honker, P.E.
Chief, RCRA Permits Branch
U.S.E.P.A.
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Mr. Honker:

This is in reference to your March 3, 1993 letter received on March 8, 1993. Our response to the items in your letter are as follows:

1. Is your facility planning to close the impoundments and convert to tanks, clean close the unit, or retrofit the units?

   We filed the Part B permit modification application as a precaution. We do not believe that the waste streams entering these impoundments will be regulated under the TC rule. The impoundments were retrofitted in 1990 to meet the Minimum Technology Requirements (MTR) for surface impoundments. Additional retrofitting is not required. The surface impoundments are used for collection and treatment of wastewater. We plan to replace these facilities with tanks, however, we plan to continue to use them as treatment surface impoundments for some time after March 29, 1994.

2. Has your facility submitted a variance to the retrofitting requirements for surface impoundments? If so, when, and to what agency (State or EPA)? Submit a copy of the dated transmittal letter for the request.

   No.

3. Please provide a brief status report on the activities being carried out in these units. The report shall include the status of the closure plans, waste acceptance into the unit.

The surface impoundments are used to treat process wastewaters. Oil is removed from the facilities by skimming and/or aeration. Solids from the wastewaters are settled in these facilities and the wastewater is then fed to an aggressive biological treatment facility. During inclement weather, the facilities are also used to treat commingled process wastewaters and stormwaters for eventual treatment at the aggressive biological treatment facility.

The closure plans are included in our permit application. They will not be initiated in the near future as our plans are to use these facilities for at least three(3) more years. A project is being engineered to segregate our process wastewaters and stormwaters. After this project is complete, these facilities will be clean closed and used in stormwater service only.

Yours very truly,

STAR ENTERPRISE

L T Townsend/sfw

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TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 31, 1994

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. K.R. Hall
Plant Manager
Star Enterprise
P.O. Box 712
Port Arthur, Texas 77640-0712

Re: Closure Plans for West and Southwest Consolidation Areas
Notice of Deficiency
Solid Waste Registration No. 30121
Hazardous Waste Permit No. HW-50188
EPA ID. No. TXD008097529

Dear Mr. Hall

The two closure plans for the West and Southwest Consolidation Areas that were submitted by the Star Enterprise Port Arthur facility in October 1991, have been reviewed by the Texas Natural Resource Conservation Commission (TNRCC). These areas are included within the confines of RFI Unit SI-14, also known as Reservoir No.14. The TNRCC understands that these areas contain listed hazardous sludges (F037) that were consolidated after the effective date of the primary sludge rule. Consequently, these units became hazardous waste management units. Star has applied for a Class 1 permit modification and intends to close these areas under interim status. The remaining portion of RFI Unit SI-14 will be addressed through the ongoing corrective action activities that are being undertaken at the facility. This letter was prepared to outline several aspects of the closure plans that require modification before they can be approved.

The Risk Reduction Rules require that preference be given to remedies that provide the best balance between cost and long-term effectiveness. Remedies that permanently decontaminate the media are favored over reversible remedies. Since the closure plans for the west and southwest consolidation area were submitted prior to promulgation of the Risk Reduction Rules, Star is not required to adhere to this aspect of the Risk Reduction Rules. However, Star may, at their option, reevaluate the stabilization/capping remedy

in light of the new remedy selection approach of the Risk Reduction Rules and present a permanent remedy or a remedy with greater long-term effectiveness. The closure plans indicate that biological and thermal treatment were considered in conjunction with stabilization of the sludge. These technologies may result in greater long-term effectiveness than stabilization and capping alone.

The closure plans state that both exsitu and insitu approaches to solidification will be considered. Please decide which method will be used and present this in a revision to the closure plans. Also discuss how regulatory considerations (i.e., land disposal restrictions) affect the selection of the remedy. Be aware that exsitu solidification and replacement may require that the landfill design meet minimum technology requirements outlined in the Code of Federal Regulations. The comments on the technical contents of the closure plans presented in the remainder of this letter, will be made assuming the consolidated sludge will be stabilized insitu.

This letter will address the following topic areas:

- Investigation requirements for consolidation areas;
- Approaches to determining and verifying the lateral and vertical extent of contamination/remediation;
- Performance Criteria and required information for the Lower Containment Barrier;
- Performance Criteria and required information for the sludge solidification activities;
- Performance Criteria and required information for construction of the upper containment barrier;
- Performance Criteria and required information for post closure care monitoring and reporting.

Be aware that it is STAR's responsibility to develop closure plans that are protective of human health and the environment and to collect all data necessary to document closure activities. This letter is not intended to be a complete closure guidance document but was prepared to point out major deficiencies in the closure plans.

<u>Investigation requirements for consolidation areas</u>

According to Star, two small subunits were created as consolidation areas within the larger SI-14 surface impoundment. Consequently, there may have been contaminated soil and groundwater present in and around these areas prior to placement of the consolidated

material. A review of the data presented in the RFI Report - Revision I (May 1993) indicated an oil sheen in monitoring wells adjacent to this area and free oil was noted in the fill material in the samples collected from at least one boring (Well RMW-52). The TNRCC is concerned that closure of this area without a thorough investigation, could obscure historical contamination at significant concentrations. Therefore, it is important that the vertical extent of contamination be determined beneath the consolidation area and that the horizontal extent of contamination be determined to at least the edge of the proposed cap. At present, there is insufficient data to define the horizontal and vertical extent of affected soil in the immediate vicinity of the consolidation areas. Additional analytical data should be obtained from soil and ground-water samples to gain a more complete picture of the nature and extent of the affected media in this area. A summary of appropriate data from the RFI Report should be included with the description of additional investigation activities.

The scope of the work should include, at a minimum, collection of subsurface soil and ground-water samples underneath and adjacent to the consolidation areas. Guidance for soil and ground-water sampling has been submitted in previous letters to Star. Since the presence of sludge within the consolidation areas may make it difficult to access these areas with conventional drilling equipment, the TNRCC will consider other approaches to determine the vertical extent of contamination beneath the consolidation areas.

Proposed investigative activities should include a representative characterization of the sludge within the consolidation area. The characterization should include a breakdown of the physical nature of the constituents (percentage liquid, solid etc.) in addition to determining the nature and concentration of the chemical constituents in the sludge. The chemical analysis should also include tests for total organic carbon.

Lateral and Vertical Extent of Remediation

The closure plans indicated that, if the insitu method of treatment was utilized, the mixing equipment will be "inserted down to a level at least 6 inches below the recorded impoundment bottom". Investigation results should be obtained and presented in the closure plans to support the proposed depth of insitu remediation. Background concentrations or other appropriate concentrations should be proposed for organic and inorganic constituents in the media underlying the sludge that can be used to determine the appropriate depth of stabilization activities.

Characterization of the Lower Waste Containment Barrier

In section 2.3.2 of both the closure plans the average permeability of the clay underlying the consolidation areas is discussed. Please describe the location of the samples that were used to arrive at the average permeability. If the samples have not been collected from beneath these specific areas, then additional samples should be collected to assess the permeability of the soils below and adjacent to the consolidation areas. Samples should be collected from each of the major clay types that comprise Unit 2 as shown in Drawing No. 3 of the closure plan. Permeability tests of the clay that are performed in the laboratory should be assessed using a leachate from the sludge, where possible.

Additional cross sections should be constructed with the geologic data gathered during sample collection to illustrate the local geology underlying the consolidation areas to point out the effectiveness of the insitu clay to function as the lower waste containment barrier.

Solidification Activities

It is the TNRCC's understanding that Star intends to reduce the toxicity and mobility of contaminants in the consolidated sludge by stabilizing with a Chemical Fixation/Solidification material prior to covering the solidified material with a cap that includes compacted clay and a synthetic liner. The solidification activities in the closure plans were deficient in three major areas.

1. The closure plans did not provide enough information describing the effectiveness of the stabilizing agent to physically bind or encapsulate organic and inorganic constituents at the concentrations found in the sludges in the consolidation areas. Generally, solidifying techniques are not effective in solidifying material with greater than 10% to 20% organics.

2. TNRCC Guidelines include performance standards for solidification of contaminated material. In a few instances Star either modified the TNRCC guidelines without an adequate explanation or, omitted discussion of the performance standard entirely.

3. The closure plans did not include a sufficient description of QA/QC procedures and verification sampling that will be conducted to ensure that the solidification process is completed as proposed.

An expanded discussion of TNRCC requirements in each of these areas of deficiency is presented below.

Effectiveness of Solidification Activities

To assure that the solidification activities will be effective, the following issues should be addressed in the closure plan.

1. Provide the results of benchscale testing that show how various percentages of a stabilizing agent affects the leaching of organic and inorganic contaminants in the consolidated material. In addition, show how permeability and unconfined strength of the stabilized sludge are affected by various mixtures of the stabilizing agent.

2. Specify the recommended mixture or range of mixtures of the stabilizing agent that will be used in the field.

3. Discuss how the amount of stabilizing agent will be adjusted to accommodate the variations in the physical and chemical nature of the consolidated sludge that is encountered in the field.

4. Discuss the equipment that will be used to mix the stabilizing agent with the sludge and describe how thorough mixing will be accomplished.

Performance Standards for Solidification

The TNRCC has developed performance standards as technical guidelines for solidification activities. In general, the performance standards should be achieved unless equivalent protection of human health and the environment can be accomplished with a modified performance standard. First, the stabilized material should have a permeability of 1×10^{-7} cm^2/sec. This was stated in the closure plans and is consistent with TNRCC closure guidance. Second, the minimum unconfined compressive strength should be 50 psi. The proposed unconfined compressive strength in the closure plan was 30 psi. This should be increased to 50 psi to conform with TNRCC guidance. Third, leachate from the stabilized material should not exceed TCLP regulatory limits for the appropriate constituents in the waste that are found in refinery sludge. A list of the constituents that the samples of the stabilized consolidated material will be analyzed for should be included in the closure plans. The effectiveness of the solidification activity should be evaluated by comparing leachate from the consolidated material to the 1500 ppm TPH cutoff between Class I and Class II industrial waste. In addition, the water content should not exceed 20% in the stabilized sludge and should

pass the paint filter test as promulgated in the April 30, 1985 Federal Register.

QA/QC for the Solidification Process

The closure plan should document the steps that will be taken to ensure that the proposed solidification activities are correctly implemented in the field and each performance standard is achieved. Minimum required QA/QC activities for the solidification of the consolidated material are discussed below.

The closure plans indicate that a pocket penetrometer will be used to assess the in-place compressive strength of the stabilized material. The TNRCC requires that this field test be supplemented with laboratory tests for unconfined compressive strength. The TNRCC requires also that additional QA/QC procedures/tests be performed to confirm that the performance standard for leachate and permeability, that are discussed above, have been achieved.

The closure plans should specify the frequency that QA/QC samples will be collected and the total number of samples that are expected throughout the project. In general, QA/QC samples should be collected for the stabilized material at the same frequency as they are collected for the clay cap. Graphically present the approximate spatial location of field QA/QC tests on a scale drawing of the consolidation areas.

If the stabilization activities are performed insitu, confirmatory samples should be collected that verify stabilization activities have been incorporated to the total depth of the sludge.

Upper Waste Containment Barrier

The TNRCC has established performance standards as technical guidelines for the upper containment barrier. The performance standards address cap thickness and density/moisture requirements during compaction. Star conformed with most of the TNRCC technical guidelines. Guidelines that were not adhered to are described below.

Characteristics of Borrow Material

The closure plans specify that the moisture density relationship of the borrow material will be determined using a standard proctor test (ASTM D698). Please describe the compaction equipment that will be used, and discuss why the standard proctor was chosen over a modified proctor (ASTM D1557).

The TNRCC assumes that permeability testing of the borrow material will be on remolded samples. Please reference the ASTM test method that describes how remolding will be accomplished.

Performance Standards for Clay Cap Construction

Star's proposal for construction of the clay cap, presented in the closure plans, is consistent with the TNRCC technical guidelines with one exception. The closure plans state that the clay used in constructing the liner will be compacted at a moisture content that is 2% to 5% below optimum. TNRCC and EPA guidance call for moisture contents that are 2% to 5% above optimum to obtain the minimum permeability.

QA/QC for Clay Cap Construction

The closure plans state that insitu moisture-density relationships will be determined at the frequency of 1 per 25,000 square feet (sf) for each lift. This equates, approximately, to testing on 150 ft. centers. TNRCC guidance specifies 5 tests/acre/lift, which is approximately equivalent to testing on 100 ft. centers. Given the relatively small size of the units, moisture-density should be performed on 100 ft. centers as specified by TNRCC guidance.

The nuclear density gauge (ASTM D2922) is typically used to determine insitu density and moisture. The closure plans suggest that only moisture will be assessed during compaction of the cap (ASTM D3017). Please revise the closure plans to include the density test in addition to the test for moisture. The results of the nuclear density gauge should be verified with the sand cone test (ASTM D1556) and a test for moisture content (ASTM D2216) at a frequency of 10%.

Hydraulic conductivity can be verified at 1 test per 25,000 sf as specified in the closure plan.

Additional Requirements for the Upper Containment Barrier

Star has indicated that fill material will be used as a subgrade prior to placement of the upper containment barrier.

QA/QC testing for the select fill material should be conducted at the same frequency as is proposed for the clay cap. The moisture content should be between 2% and 5% above optimum as opposed to below optimum as is specified in the closure plans.

A discussion of the QA/QC procedures that will be utilized for placement and welding of the synthetic liner and placement of the drainage net and filter fabric was not included in the closure plans. Please discuss these procedures in the revision to the closure plans.

Post Closure Care Monitoring Requirements

Since closure activities will result in waste remaining in place, post closure care monitoring of the ground water is required. Star has proposed four (4) wells in the first water-bearing zone in each of the areas. Additional monitor wells should be located around each of the consolidation areas so that the spacing between wells does not exceed approximately 200 ft. Please revise the drawing illustrating the proposed well locations in the closure plans.

Subsequent to final approval of the closure plan, Star should prepare and submit a Class 3 permit modification with a Compliance Plan application that addresses long-term ground-water monitoring and cap maintenance.

Reporting Requirements

In order to review the closure report that will be prepared after the closure activities are completed in a timely and efficient manner, the TNRCC requests that an outline and discussion of the contents of the closure report be included in the closure plan. This will provide the agency the opportunity to comment on the format of the report before it is prepared. Please also include blank copies of the forms that will be used to record QA/QC data in the field so the agency can confirm that all necessary raw data will be collected to verify closure activities.

Public Notice

After Star submits the revised closure plans and the agency acknowledges that the revised plans meet the requirements outlined above, Star is required to notify the public of the intended closure activities through a newspaper that is widely distributed in the geographical location of the facility. In addition Star must obtain an affidavit from the publisher indicating that the notice appeared in the newspaper. A sample letter for public notice and a form to be used to obtain the sworn statement from the publisher is enclosed. Within 5 days of the date that the notice is published, Star should submit an original of the notice and the completed affidavit to the TNRCC. As shown in the sample notice, written public comments should be directed to the TNRCC. If the agency does not receive any comments during the comment period, the TNRCC will send a letter of approval for the closure activities. If comments are received, the TNRCC will consider the comments and may request changes in the closure activities.

Closing Comments

Within 90 days from the date of this letter, Star shall provide the TNRCC with a revised copy of the closure plans for the West and Southwest Consolidation Areas. Star should submit an original and three (3) copies of the revised closure plans for TNRCC review and approval.

All copies of the revised plans and future corrective action correspondence should be forwarded to the attention of Mr. Paul S. Lewis, Manager, Corrective Action Section, Industrial and Hazardous Waste Division, TNRCC, Box 13087, Austin, Texas 78711-3087.

If you have any questions concerning the corrective action process or the contents of this letter please contact Mr. Jay Carsten of the Corrective Action Team at (512) 239-2348.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial & Hazardous Waste Division

PSL:jc

Enclosure

cc: John Rinehart, EPA Region VI - Dallas
Scott Jackson, TNRCC Region 6 - Beaumont
John Williamson, I&HW Div., Permits Section
Teres Jimenez, I&HW Div., Permits, Groundwater Team
Deanna Epperson, I&HW Div., Enforcement Section - Austin
Tennie Larson, I&HW Div., Corrective Action Section (CA-484)

Notice of Proposed Corrective Measures Implementation

[name of the company], located _____, has hereby given notice to the Texas Natural Resource Conservation Commission (TNRCC) to undertake the proposed corrective measure(s) at a Solid Waste Management Unit(s) operated at the above location. The proposed corrective measure(s) are [name the units, those proposed for "no further action", and briefly describe the corrective measure(s)] _____

The purpose of this notice is to give members of the public the opportunity to submit written comments on and request modifications to the proposed corrective measure(s). The Executive Director may, in response to a request or at his own discretion, hold a public meeting/hearing on the proposed corrective measure(s) whenever such a meeting/hearing might clarify one or more issues concerning the corrective measure(s). Any comments or requests for a public meeting/hearing must be submitted within 30 days of the date of publication of this notice to: Paul S. Lewis, Manager, Corrective Action Section, Industrial and Hazardous Waste Division, Texas Natural Resource Conservation Commission, P.O. Box 13087, Austin, Texas, 78711-3087. Copies of the RCRA Facility Investigation, the Corrective Measures Study and/or the Corrective Measures Implementation Documents are open for public inspection at the north Austin office of the TNRCC located at Technical Park Center, Building D, Room 109N, 12118 North IH-35, Austin, the local TNRCC Regional Office [district address], and/or at the EPA Region VI Office, 1455 Ross Avenue, Dallas, Texas. The Executive Director will give public notice of any meeting or hearing at least 30 days before it occurs.

PUBLISHER'S AFFIDAVIT

STATE OF TEXAS

COUNTY OF _____

Before me this day personally appeared _____ _____, the _____ of the _____, a newspaper which is regularly published or circulated in _____ County, Texas, who being by me duly sworn deposes and says:

The foregoing notice was published in said newspaper on _____, 199__.

_____

Subscribed and sworn to before me this the _____ day of _____, 199__.

_____

Notary in and for _____ County, Texas.

CAT-PN.LTR

DEC 21 1993

Mr. Johnny Williamson, Permit Coordinator
Industrial and Hazardous Waste Permits Section
Hazardous and Solid Waste Division
Texas Natural Resources Conservation Commission
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

RE: Star Enterprise Port Arthur Plant, Land Treatment Unit Comments During Public Notice Period, EPA. I.D. No. TXD008097529

Dear Mr. Williamson:

Enclosed are formal comments concerning the Class 2 Permit Modification Application submitted by Star Enterprise to change the class of wastes managed in their Land Treatment Unit (LTU) from Class 1 hazardous and non-hazardous to Class 1 non-hazardous. The comments are based on information in the report prepared by the Environmental Protection Agency (EPA's) contractor entitled "Land Treatment Unit Performance Evaluation Report, Star Enterprise, Port Arthur Refinery, Port Arthur, Texas, TXD008097529" and other information on file.

The EPA review of the LTU indicates that the unit is not effective in transforming, degrading, and immobilizing hazardous constituents and that migration has occurred through the regulated five foot treatment zone. Therefore, the LTU cannot be permitted or operate in a manner protective of human health and the environment. The Agency recommends that the LTU be closed and that the permit modification for the application of non-hazardous waste be denied. More specific reasons for this action are included in the enclosed as comments.

Furthermore, the dredged materials on which the LTU is constructed appear to be contaminated media. It is recommended that the State investigate the possibility of designating the area as a Solid Waste Management Unit (SWMU) for a RCRA Facility Investigation (RFI).

Thank you for your consideration of the Agency's comments. If you or your staff have any questions, please contact David Vogler of my staff at (214) 655-7428.

Sincerely yours,

DV

William K. Honker, P.E.
Chief RCRA Permits Branch

Enclosure

12-20/93

6H-PT:VOGLER:dv/sb:7428:J:\U\S\6H-PT\STAR-COM.LET:FILE CODE:TXD008097529-STAR ENTERPRISE-PERMITS

6H-PT	6H-P
KING	THOMAS
12/21	P.T. 12/21

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

DEC 21 1993

Mr. Johnny Williamson, Permit Coordinator
Industrial and Hazardous Waste Permits Section
Hazardous and Solid Waste Division
Texas Natural Resources Conservation Commission
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

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Thank you for your consideration of the Agency's comments. If you or your staff have any questions, please contact David Vogler of my staff at (214) 655-7428.

Sincerely yours,

for William K. Honker, P.E.
Chief RCRA Permits Branch

Enclosure

U.S. ENVIRONMENTAL PROTECTION AGENCY
COMMENTS TO CLASS 2 PERMIT APPLICATION
SUBMITTED BY STAR ENTERPRISE
PORT ARTHUR, TEXAS
EPA ID NO. TXD008097529

COMMENT 1. The owner or operator did not demonstrate as required by 40 CFR 264.113 (d)(1)(i) that the unit has existing design capacity to receive non-hazardous wastes. The migration of hazardous constituents outside of the treatment zone indicates that the design capacity has been exceeded. Hazardous constituents have accumulated in the zone of incorporation in concentrations that preclude further operation. For example, lead is found in the zone of incorporation with concentrations up to 1900 mg/kg which exceeds recommended loading and indicates that capacity has been exceeded. Non-hazardous wastes often contain hazardous constituents which would further overload the unit.

COMMENT 2. The owner or operator did not demonstrate as required by 40 CFR 264.113 (d)(1)(iv) that closure of the hazardous waste management unit would be incompatible with the continued operation of the unit or facility. Many facilities including refineries operate without Land Treatment Units. "The practical, rather than economic, disruptions which closure of the unit with remaining capacity would have on facility operations should be evidenced" (FR, Vol. 54, No.155, p. 33385).

COMMENT 3. The owner or operator did not demonstrate that operation is in compliance with the permit requirements or the Code of Federal Regulations or will continue to operate in compliance as required by 40 CFR 264.113 (d)(1)(v). Migration of hazardous constituents past the five foot allowable treatment zone has occurred which is not in compliance with 40 CFR 264 Subpart M requirements. Apparently, the facility did not report statistical significant increases or take steps to become compliant.

COMMENT 4. The request to modify the permit did not include the requirements listed in 40 CFR 264.113 (d)(2). It would be necessary and appropriate to include an amended waste analysis plan, closure plan, updated cost estimates and expected year of closure to reflect present conditions of the Land Treatment Unit and changes due to the presence of hazardous constituents in the non-hazardous waste.

COMMENT 5. In general, the EPA maintains that continued operation of the unit will add more hazardous constituents to a unit which has shown to have an accumulation of hazardous constituents in the zone of incorporation which are migrating beyond the allowable five foot treatment zone. Continued operation would also facilitate percolation of liquids and precipitation while delaying closure or corrective action activities that would remediate some of the problems with this unit. Therefore, the EPA contends that the unit cannot be operated in a manner that is protective of human health and the environment and recommends closure of the unit in a manner that meets that goal.

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

December 16, 1993

Laurie King, Chief
Texas Section
Hazardous Waste Management Division
U. S. Environmental Protection Agency
Region VI - 6H-PT
1445 Ross Avenue
Dallas, Texas 75202

Re: Star Enterprise - Port Arthur
Solid Waste Registration Number 30121
Permit Application Number 50018
EPA I. D. Number TXD008097529

Dear Ms. King:

Enclosed is a Class II Modification request received on November 5, 1993 to the hazardous waste permit for the subject facility.

Comments should be addressed to Johnny Williamson. He may be contacted at (512) 908-6631.

Sincerely,

Robert Brydson

Robert Brydson
Permits Section
Industrial and Hazardous Waste Division

RB/lb
Enclosure

cc: Jeffrey Saitas, Office of Air Quality, Permitting & Enforcement, TNRCC - Austin
Vic Fair, Manager, TNRCC, Region 10 Office - Beaumont

Vogler

StarEnterprise

Kenneth R Hall
Plant Manager

P O Box 712
Port Arthur TX 77641-0712
409 989 7001
FAX 409 989 7774

October 27, 1993

TO THE ADDRESSEE:

RE: Notice of Permit Modification Application
Class 2 Permit Modification Application;
Star Enterprise Port Arthur, Texas Plant;
Hazardous Waste Permit No. HW-50188

Attached please find a Notice of Permit Modification Application. This notice is provided in accordance with requirements set forth in 40 CFR 270.42(b)(2), 264.113, 124.10 and TAC Section 305.69. A Class 2 Permit Modification application has been submitted to the Texas Natural Resource Conservation Commission (TNRCC). The modification addresses changes to the class of wastes managed at the Star Enterprise Land Treatment Facility, as well as administrative changes to the Part A and Part B Permits that are not currently covered under Hazardous Waste Permit No. HW-50188. The permit modification request has been prepared in accordance with the requirements of 40 CFR 270.42.

Sincerely,

STAR ENTERPRISE

KR Hall

:BPH

Attachment

PUBLIC NOTICE

NOTICE OF CLASS 2 PERMIT MODIFICATION APPLICATION; STAR ENTERPRISE PORT ARTHUR, TEXAS PLANT HAZARDOUS WASTE PERMIT NO. HW-50188

Star Enterprise (Star), located at the north end of Houston Avenue in Port Arthur, Texas has requested a Class 2 Permit Modification to Texas Natural Resource Conservation Commission (TNRCC) hazardous waste permit No. HW-50188. The modification requests changes to the class of wastes managed at the Star Land Treatment Facility (from Class I hazardous and non-hazardous to Class I non-hazardous), as well as administrative changes to the Part A and Part B Permits that are not currently covered under Hazardous Waste Permit No. HW-50188.

In accordance with 31 TAC Section 305.69(b)(4), Star will hold a public meeting on Wednesday, December 1, 1993, at the following location: Star Enterprise Employee Building, North End of Houston Ave. Port Arthur, Texas 77641.

Written comments and/or requests for further information on the application should be addressed to the TNRCC contact person listed below, within sixty (60) days of the date of publication of this notice.

Agency Contact Person
Mr. Johnny Williamson, Permit Coordinator
Industrial and Hazardous Waste Permits Section
Texas Natural Resources Conservation Commission
P. O. Box 13087 Capitol Station
Austin, Texas 78711-3087
(512) 908 - 6631

All comments received prior to or on that date will be considered by the TNRCC in the formulation of final determinations regarding the modification application. The permittee's compliance history during the life of the permit being modified is available from the TNRCC contact person. The contact person for Star is:

Star Contact Person
Mr. Bill Wimberley
Manager, Environmental Health and Safety
Star Enterprise P. O. Box 712
Port Arthur, Texas 77641
(409) 989 7050

A copy of the modification request can be viewed and copied at the following location:

Port Arthur Public Library Reference Department
3601 Cultural Center Drive
Port Arthur, Texas 77642

Vogtle

No 1 + 60 days

StarEnterprise

Kenneth R Hall
Plant Manager

P.O. Box 712
Port Arthur, TX 77641-0712
409 985 7211
FAX 409 985 7771

October 27, 1993

TO THE ADDRESSEE:

RE: Notice of Permit Modification Application
Class 2 Permit Modification Application;
Star Enterprise Port Arthur, Texas Plant;
Hazardous Waste Permit No. HW-50188

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Sincerely,

STAR ENTERPRISE

KR Hall

:BPH

Attachment

PUBLIC NOTICE

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Mr. Johnny Williamson, Permit Coordinator
Industrial and Hazardous Waste Permits Section
Texas Natural Resources Conservation Commission
P. O. Box 13087 Capitol Station
Austin, Texas 78711-3087
(512) 908 - 6631

All comments received prior to or on that date will be considered by the TNRCC in the formulation of final determinations regarding the modification application. The permittee's compliance history during the life of the permit being modified is available from the TNRCC contact person. The contact person for Star is:

Star Contact Person
Mr. Bill Wimberley
Manager, Environmental Health and Safety
Star Enterprise P. O. Box 712
Port Arthur, Texas 77641
(409) 989 7050

A copy of the modification request can be viewed and copied at the following location:

Port Arthur Public Library Reference Department
3601 Cultural Center Drive
Port Arthur, Texas 77642

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

December 2, 1993

Laurie King, Chief
Texas Section
Hazardous Waste Management Division
U. S. Environmental Protection Agency
Region VI - 6H-PT
1445 Ross Avenue
Dallas, Texas 75202

Re: Star Enterprise - Port Arthur
Solid Waste Registration Number 30121
Permit Application Number 50188
EPA I. D. Number TXD008097529

Dear Ms. King:

Enclosed is a Class 2 Modification request received on November 9, 1993 to the hazardous waste permit for the subject facility.

Comments should be addressed to Johnny Williamson. He may be contacted at (512) 908-6631.

Sincerely,

Robert Brydson
Permits Section
Industrial and Hazardous Waste Division

RB/lb
Enclosure

cc: Jeffrey Saitas, Office of Air Quality, Permitting & Enforcement, TNRCC - Austin
Allen Parker, Manager, TNRCC, Region 12 Office - Houston

EPA
12/2/93

StarEnterprise

Kenneth R Hall
Plant Manager

P O Box 712
Port Arthur TX 77641-0712
409 989 7001
FAX 409 989 7774

October 27, 1993

P 991 398 139
CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Texas Natural Resource Conservation Commission
Attention: Permits Section; Mr. Johnny Williamson
P. O. Box 13087
Capitol Station
Austin, Texas 78711-3087

RE: Submittal of Class 2 Permit Modification Application for Star Enterprise's Land Treatment Unit in Port Arthur, Texas; Hazardous Waste Permit No. HW-50018
ENV 1603

Dear Mr. Williamson:

Enclosed please find five copies of a Class 2 Permit Modification Application for the Star Enterprise facility in Port Arthur Texas (Hazardous Waste Permit No. HW-50018). This permit modification application has been prepared in accordance with 40 CFR 270.42, 264.113, 40 CFR 124.10 and TAC 305.69.

As part of the requirements for this permit modification, a public notice will be published in the Beaumont Enterprise and the Port Arthur News by November 1, 1993. Also, notices to persons on the facility mailing list will be mailed once the notice is published in the newspapers. A copy of the publication and mailing notification, as well as a copy of the Star facility updated mailing list is included with this application. Evidence of the newspaper publication and notification will be submitted to the Texas Natural Resource Conservation Commission (TNRCC) under separate cover.

Also included is a photostatic copy of a check for payment of the permit application fees. This check has been submitted directly to the TNRCC Fiscal Management Division.

By this submittal and the completion of all public notice requirements, all Class 2 Permit Modification Application requirements have been met. If you have any questions, please call Brad Hopper at (409) 989 - 7689.

Sincerely,

STAR ENTERPRISE

Signed: K. R. Hall

:BPH

Enclosures

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

August 13, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. K.R. Hall
Plant Manager
Star Enterprise
P.O. Box 712
Port Arthur, Texas 77640-0712

Re: Interim Corrective Measures Implementation Workplan
Approval With Modifications
Solid Waste Registration No. 30121
Hazardous Waste Permit No. HW-50188
EPA ID. No. TXD008097529

Dear Mr. Hall

The Texas Water Commission (TWC) has reviewed the Interim Corrective Measures Implementation Workplan (ICMI) that was submitted by the Star Enterprises Port Arthur facility in April 1993. The workplan was completed in response to a letter sent to Star from the TWC on January 28, 1993, which required that an Interim Corrective Measures Implementation (ICMI) Workplan be developed as a separate project at the facility as a stabilization activity. The objective of the workplan as outlined in the letter of January 28, 1993 is to present the scope of work necessary to identify and recover LNAPL (Light Non Aqueous Phase Liquids) from ground water and surface water at the Port Arthur Refinery. This letter documents the approval of the Interim Corrective Measures Implementation (Stabilization) Workplan provided the modifications listed below are incorporated into the plan.

Interim Corrective Measures Workplan Modifications

In order to approve the Interim Corrective Measures Workplan the following highlighted modifications are suggested for incorporation into the workplan. The exact wording of the modifications may be changed, if necessary, but the meaning/intent of the modifications must be retained.

1. Page 12, Section 4.1, Overview of Approach

These areas will be defined prior to and during implementation of the CMI through results from previous and ongoing RFI or facility-wide investigations, record searches, site reconnaissance, and interview with Star Enterprise personnel. The subsurface investigation will include both coring and collection of soil samples from conventional continuous borings and the installation of monitoring wells to allow the measurement and sampling of LNAPL in areas identified during the survey. If LNAPL is discovered at the plant boundary then Star will notify the TWC and EPA and attempt to gain access to the adjacent property and define the extent of the LNAPL plume.

2. Page 29, Section 4.3, Survey of Existing Well, 2nd Paragraph

Additional wells may be added to the list based on subsequent RFI or facility-wide investigation activities as they are installed.

In addition to the modification above, the TWC has added 27 existing wells to the proposed list of wells that should be surveyed for LNAPL. Most of the additional wells are located adjacent to Alligator Bayou or the Drainage Canal. Boring logs from these wells may not indicate the presence of LNAPL. However, it is important to document this over an extended period. The list of 27 wells is shown in the attached table.

3. Page 35, Section 4.4, LNAPL Plume Delineation

A plume delineation program will be conducted at the Star Enterprise facility to assess the nature and horizontal extent of LNAPL in the subsurface when LNAPL is identified in a ground-water monitor well.

4. Page 35, Section 4.4.1, Uppermost Aquifer Investigation

Additional monitor wells will be completed to investigate areas of suspected LNAPL or ground-water contamination identified during record searches, site reconnaissance visits, ~~and~~ interviews with Star personnel, and as a result of RFI activities or a facility wide groundwater assessment.

5. Page 36, Section 4.4.2, Fill/Clay Zone Investigation

Additional soil borings will be completed in areas where free product is noted within the fill/clay zone during drilling of new wells into the uppermost aquifer, and as a result of information gathered during subsequent RFI activities and the

facility wide hydrocarbon investigation. ....

If hydrocarbon-saturated soils or potential hydrocarbon seeps are encountered, the boring will be allowed to stand open overnight with a temporary well in place to determine if free-phase hydrocarbon flow into it. If an accumulation of hydrocarbon is detected the next day, the ~~boring~~ temporary well will be converted into a permanent well as outlined in Appendix B.

6. Page 38, Section 4.5 LNAPL Characterization

It should be noted that ~~if~~ this investigation is to be carried out under the regulatory authority of the facility's hazardous waste permit or any enforcement action. The LNAPL samples will ~~also~~ be tested for ~~Appendix VIII~~ Skinner List constituents.

7. Page 49, Section 7.3 Interim Corrective Action

Interim corrective measures will be implemented and fully operational ~~following permit amendment~~ within 60 days upon determination of the extent of each ~~Appendix VIII constituent containing~~ LNAPL plume. Exceptions to this requirement may be necessary based on the size of an LNAPL plume and/or the complexity of the site and must be approved by the TWC.

Appendix B Subsurface Investigation Drilling and Sampling Procedures

8. Page B-2, 2.0 LNAPL Sampling Procedures

If the measured LNAPL thickness in a monitor well is 0.10 foot or greater, a sample of the LNAPL will be collected for a fingerprinting and ~~Appendix VIII~~ Skinner List analysis.

9. Page B-3, 3.0 Drilling and Soil Sampling Procedures, 2nd Paragraph

The soil from each borehole will be screened with a photoionization detector (PID) or flame ionization detector (FID) based on the best relative response factor for Skinner List constituents. The organic vapor analyzer will be calibrated on a daily basis or in compliance with appropriate QA/QC procedures.

10. Page B-6, 4.0 Monitoring Well Completion Procedures

- calculated and actual volume, and type of filter pack material;

- calculated and actual volume and type of sealant material;

Similar modifications should be made to the list of recovery well design information on page B-12.

Letter of July 19, 1993

On July 19, 1993 Star Enterprises sent a letter to the TWC outlining three modifications to the ICMI Workplan (April 1993). The letter stated that initially, Star intends to focus the LNAPL investigation on wells adjacent to Alligator Bayou, since there is concern that adjacent SWMUs may be releasing LNAPL to the bayou. The TWC agrees with the prioritization of the LNAPL investigation along Alligator Bayou. Be aware that additional investigation, stabilization or remediation activities may be necessary adjacent to these SWMUs following review of the RFI Report - Revision I. The TWC understands that all existing wells along the bayou will be surveyed for LNAPL and that additional wells may be installed to fill potential data gaps. The three items that were presented in the July 19, 1993 letter are discussed below.

Item 1 addressed changing the list of proposed analytes for soil samples from the Appendix VIII list of analytical parameters to the Skinner List of parameters. The TWC agrees with this proposal and has herein approved this change as a modification to the ICMI Workplan.

Item 2 describes the analysis for LNAPL. The proposed analysis includes a GC scan, fingerprinting, API Gravity etc. to characterize the hydrocarbon. This list of parameters appears to be almost identical to those specified in the ICMI Workplan. The TWC requires that the list of parameters presented in the letter shall match those in the ICMI Workplan. Specifically the Skinner list organic constituents should be included in the GC scan.

Item 3 described analysis of water samples that will be collected from ground-water monitor wells along Alligator Bayou. This activity is currently not included in the investigation requirements that are described in the ICMI Workplan. The TWC understands that Star intends to voluntarily perform an assessment of dissolved organics in wells adjacent to the bayou to supplement the results from the LNAPL survey and that the intention of this activity is to more effectively locate potential LNAPL plumes. Star proposes to initially analyze ground-water samples for BTEX and TPH and based on the results (greater than the detection limit for BTEX and greater than 50 ppm for TPH) analyze subsequent samples for Skinner List organics. Be aware in the future, it may be necessary to analyze ground-water samples from these wells for specific metals in connection with RFI activities.

Closing Comments

As stated in the ICMI Workplan, the survey of existing wells for LNAPL should begin within thirty (30) days after receipt of approval of the workplan. Implementation of the boring plan should commence within thirty (30) days following the completion of the well survey. Similarly, implementation of the surface water investigation should commence within sixty (60) days of receipt of this letter.

All future corrective action correspondence should be forwarded to the Executive Director to the attention of Mr. Paul S. Lewis, Manager Corrective Action Section, Industrial and Hazardous Waste Division, Box 13087, Austin, Texas 78711-3087. If you have any question about the contents of this letter please contact Mr. Jay Carsten of the Corrective Action Team at (512) 908-2348.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial & Hazardous Waste Division

PSL:jc/jwa

cc: John Rinehart, EPA Region VI - Dallas
John Wilder, District 6 - Beaumont
John Williamson, I&HW Div., Permits Section
Teres Jimenez, I&HW Div., Permits, Groundwater Section
Deanna Epperson, I&HW Div., Enforcement Section
Tennie Larson, I&HW Div., Corrective Action Section
Stabilization Measures (Groundwater/LNAPL)
Workplan Approval (CA-614)

StarEnterprise

K R Hall
Plant Manager

P O Box 712
Port Arthur TX 77641 0712
409 989 7001
FAX 409 989 7774

July 30, 1993

P 217 196 879
CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Mr. Minor Brook Hibbs
Permits Section
Industrial and Hazardous Waste Division
Texas Water Commission
P.O. Box 13087, Capitol Station
Austin, TX 78711-3087

Reference: Response to June 28, 1993 Notice of Determination for the Land Treatment Demonstration Review
Star Enterprise - Port Arthur
Solid Waste Registration No. 30121, Permit No. HW-50188
ENV 1625

Dear Mr. Hibbs:

Star Enterprise Port Arthur Plant (Star) is in receipt of your letter dated June 28, 1993 regarding your review of the Land Treatment Demonstration (LTD) Final Report. This letter has been prepared in response to your review. Star's general response to your concerns expressed in your letter are listed below in the same order presented in the June 28, 1993 letter.

1.a) As described in the LTD Final Report, Star's Land Treatment Unit (LTU) was constructed over dredge spoils which extend down to 10 to 15 feet in depth in some areas. We believe the statistically significant increase (SSI) over background concentrations determined in some of the soil-core and soil-pore liquid data reflect pre-existing constituent concentrations in the dredge spoils rather than concentrations contributed to the treatment zone from waste applications. Constituents which are incorporated into the treatment zone are degraded, transformed, or immobilized within the zone of incorporation (ZOI), as supported by the laboratory treatability study and the reconnaissance investigation (RI) data. As presented in Section 2.0 of the LTD report, waste constituent concentrations were detected at lower concentrations in the ZOI, where active treatment is occurring, than in the upper or lower treatment zones occurring in the dredge spoils. This indicates that with active management through tilling, the organic constituents are degraded over time.

Star did not submit a separate report to the TWC demonstrating that the LTU waste applications are not a source of the SSIs per Provision IV.E.4.g. because the LTU was not operating under the Phase II permit at that time. As we understand Provision II.D., Phase II of the permit, which includes Provision IV.E.4.g., does not become effective until the LTD has been approved.

1.b) As mentioned above, the LTU was constructed over dredge spoils used as fill material to build up the land used by the LTU. As the dredge spoil was used to fill depressions and low areas and not initially intended to be used as landfarm construction material, the placement of the fill material was uneven. Consequently, the thickness of the dredge spoil varies across the site, and the treatment zone cannot be distinguished from the spoil material. As any lysimeter installation within the dredge spoil material itself would automatically result in SSIs due to pre-existing constituent concentrations, they would not be able to detect any constituent migration from waste applications. Therefore, the decision was made to install the lysimeters immediately below the bottom of the dredge spoil material in unaffected native soils, rather than follow the recommendations in the guidance manual.

2. For statistical comparison purposes, Star believed that it was necessary to collect background soil core samples from areas which were similar to the active areas, but did not receive any waste applications, to minimize naturally inherent variability's in the soil. Therefore, background samples were collected from areas outside the active plots consisting of the same dredge spoil material used to construct the LTU. Because of pre-existing constituents present in the dredge spoil material, detectable concentrations of constituents were found in the background core samples.

3.a) Please refer to response #1.b).

3.b) Please refer to response #1.b).

4. The uppermost naturally occurring aquifer appears to occur at a depth between 20 to 25 feet below the ground surface. Depths to seasonally high water tables will be submitted to you following review of historical groundwater elevation measurements.

5. The weaknesses of the Vadose Zone Interactive Process (VIP) model use in conducting the degradation and mobility studies are as follows:

- the model assumes partitioning <u>into</u> 3 phases (oil, water, soil), but does not allow partitioning <u>between</u> the phases
- the model assumes a <u>constant</u> degradation rate with depth (rather than <u>variable</u> degradation rates with depth); and
- net negative evapotranspiration rates (such as those experienced at Port Arthur) can not be used as input to the model. Therefore, a relatively high infiltration rate must be put into the model to "force" migration of organic constituents.

5. The VIP model strengths include the following:

- the model can account for volatilization, degradation and partitioning;
- the model is useful as a judge of relative mobility (i.e., mobility differences between different constituents); and
- the model allows input of initial concentrations (i.e., pre-existing conditions) into the different phases rather than assuming initial concentrations of "0" ppm.

6.a) As described on page 7-9 of the LTD Final Report, a waste application rate of 0.00254 g oil/100 g soil was used in the optimal operations model run. An application period of 365 days per year with an application frequency of 3.5 days was used as model assumptions.

6.b) Pages 4-8, 4-9, and 4-22 of the LTD Final Report describe the soil microbiology study conducted during the laboratory treatability studies. Concentrations of total microorganisms in the seed soil were determined to be 8.5×10^6 CFR (Colony Forming Units)/gram dry soil. Substantially higher populations were present at the study conclusion in the active treatment pans indicating sufficient nutrients and substrate were present throughout the study; and lower populations of microorganisms were present in the control reactor, which received no additional substrate.

7. Star believes that the LTD study certification presented in Section 9.0 of the Final Report satisfies the requirements of Provision III.C.3.c.; however, since the TWC's position is that insufficient detail was provided in the certification, Star would appreciate your interpretation in terms of the level of detail required in the certification.

8. It does not appear that the sited provision requires defining the treatment zone. Moreover, as explained in response #1.b), the LTU was constructed over dredge spoils used as fill material to build up the land used by the LTU. Therefore, the dredge spoil and treatment zone thickness varies across the site. The figure presented in Attachment 1 to this letter provides a general isopach map of the dredge spoil thickness based on lysimeter installation trench logs.

9. Please refer to response #1.a).

10. Please refer to response #2.

11. Please refer to response #1.a) and 1 b).

12. Please refer to response #1.a) and 1 b).

13. Star is aware of the insufficient soil-pore liquid volumes collected from the lysimeters during periods of dry weather conditions. In particular, lysimeters in Plots 2, 3B, 4, 7A, and 7B showed repeated inability to produce sufficient sample volumes. Therefore, Star replaced these lysimeters in 1989 between December 11 through December 15. Lysimeter installation locations and test pit logs are provided as Attachment 2 to this letter. Since the replacement of these lysimeters, soil-pore liquid volumes have increased.

14.a) As described in response #1.a), Star did not submit notification to the TWC regarding the SSIs per Provision IV.E.4.f(1) because it was our understanding that Phase II of the permit, which includes Provision IV.E.4.f.(1), does not become effective until the LTD has been approved.

14.b) Star did not cease waste applications on the land treatment cells which show SSIs per Provision IV.E.4.f.(2) because it was our understanding that Phase II of the permit, which includes Provision IV.E.4.f.(2), does not become effective until the LTD has been approved.

14.c) Star did not submit a remediation plan to the TWC per Provision IV.E.4.f.(3) or commence closure per Provision IV.E.4.(4) because it is our understanding that the LTU is not operating under the Phase II permit.

15.a) Please refer to response #1.a).

15.b) Please refer to response #1.a).

15.c) Please refer to response #1.a).

General Comments

Star believes that the SSIs determined for the below treatment zone (BTZ) hazardous constituents in both the soil core and soil-pore liquid samples represent pre-existing concentrations representative of the dredge spoils underlying the ZOI. The oil and grease concentrations detected in the ZOI semi-annual sampling activities generally average 5 percent, which is an acceptable target loading rate for LTUs.

Star Enterprise would like to continue operating the LTU for accepting non-hazardous waste and Star will further evaluate our situation with the LTU and determine if option 3, a Class 3 permit modification for delayed closure, would be feasible.

We trust the foregoing has adequately addressed your concerns with our Land Treatment Demonstration Report. If you need any additional information or have any questions concerning our responses, please call Mr. Brad Hopper at (409) 989-7689.

Sincerely,

STAR ENTERPRISE

K R Hall/afw

:BPH

ATTACHMENT 1
DREDGE SPOILS ISOPACH MAP

RETEC

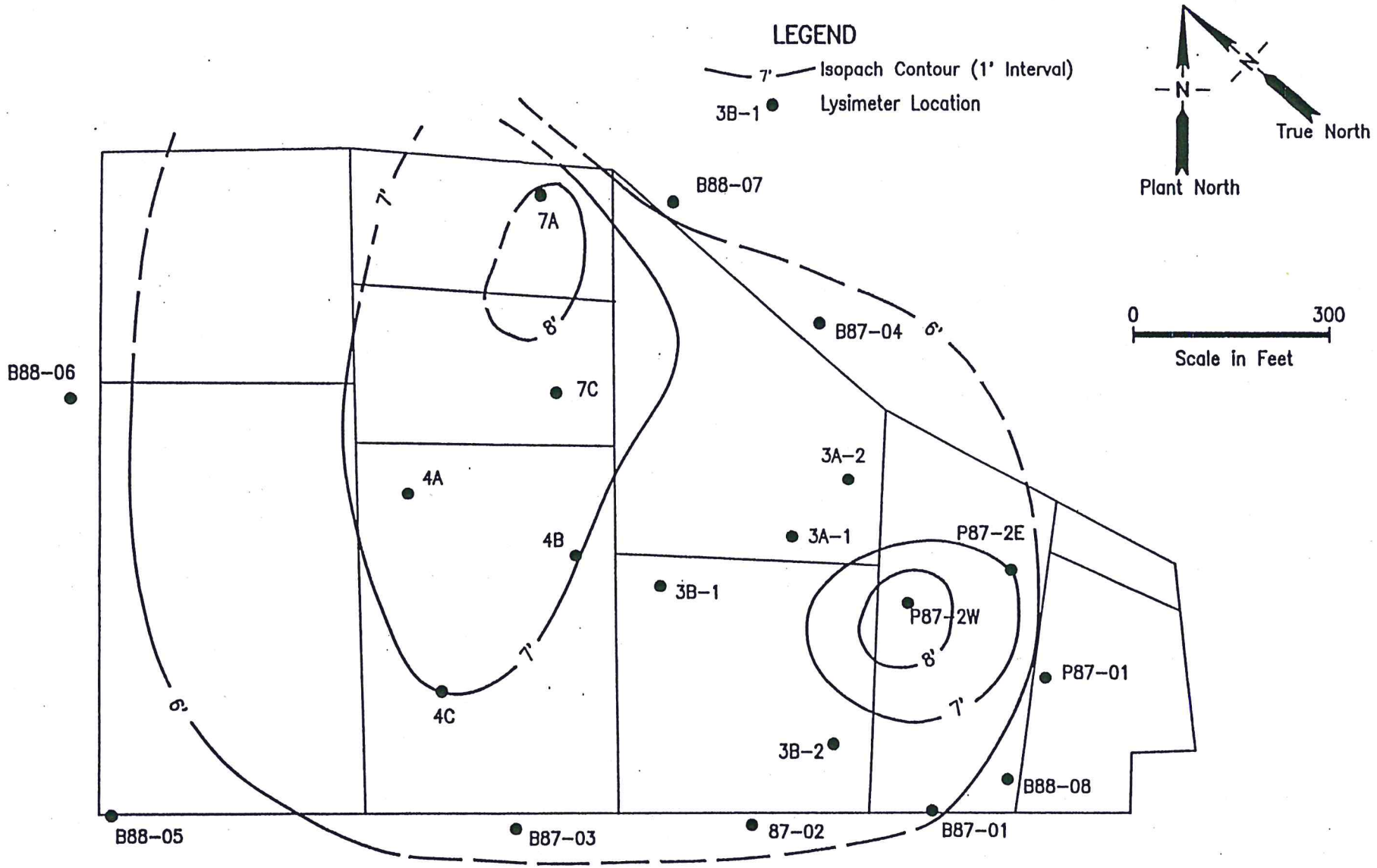


Figure 1
Dredge Spoil Isopach Map
Star Port Arthur Plant

ATTACHMENT 2
REPLACEMENT LYSIMETER INSTALLATION LOCATIONS AND TRENCH LOGS

Project Texaco Site Port Arthur Test Pit 7A Sh 1 of 7

Date Dec. 11, 1989 Location Plot 7A Ground Elevation _____

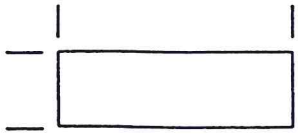
Total Depth 8 Contractor ReTeC Logged J. Evans

Equipment Used Backhoe, bulldozer

Remarks _____

Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
	0			0 - 1 feet: Fine sand/silt with black organic material.
	1			1 - 8 feet: Mixture of dark brown clay and black organic material.
	2			
	3			
	4			
	5			
	6			
	7			7.5 feet: Lysimeter installed to this depth at 45 degree angle.
	8			Test pit depth terminated at 8 feet.

ReTeC



Test Pit Plan

Project Texaco Site Port Arthur Test Pit 7C Sh 2 of 7

Date Dec. 12, 1989 Location Plot 7B Ground Elevation

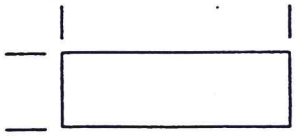
Total Depth 7 Contractor ReTeC Logged J. Evans

Equipment Used Backhoe, bulldozer

Remarks

Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
	0			0 - 1 feet: Black, organic waste material.
	1			1 - 3 feet: Tan clay with black organic material and grass.
	2			
	3			3 - 7 feet: Black, degraded organic material and clay with pockets of tan clay.
	4			
	5			
	6			
	7			Test pit depth terminated at 7 feet.
	8			7.5 feet: Lysimeter installed to this depth at 45 degree angle.

ReTeC



Test Pit Plan

Project Texaco Site Port Arthur Test Pit 4B Sh 3 of 7

Date Dec. 13, 1989 Location Plot 4 Ground Elevation _____

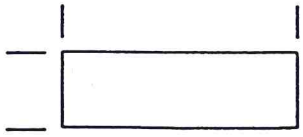
Total Depth 7 Contractor ReTeC Logged J. Evans

Equipment Used Backhoe, bulldozer

Remarks _____

Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
	0			0 - 1 feet: Silty clay and black organic material.
	1			1 - 3 feet: Layers of tan clay and black organic material.
	2			
	3			3 - 7 feet: Tan clay and black organic material. Strong hydrocarbon odor.
	4			
	5			
	6			
	7			Test pit depth terminated at 7 feet.
	8			7.5 feet: Lysimeter installed to this depth at 45 degree angle.

ReTeC



Test Pit Plan

Project Texaco Site Port Arthur Test Pit 4A Sh 4 of 7

Date Dec. 13, 1989 Location Plot 4 Ground Elevation _____

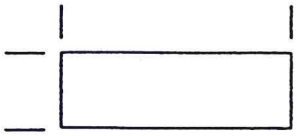
Total Depth 7 Contractor ReTeC Logged J. Evans

Equipment Used Backhoe, bulldozer

Remarks _____

Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
	0			0 - 2 feet: Silty sand, organic matter and degraded organic matter; interbedded with white/yellow/tan silty clay.
	1			
	2			2 -2.5 feet: Tan, clayey silt with low plasticity.
	3			2.5 - 3 feet: Black/brown clay with organic matter and wood and grass.
	4			3 - 7 feet: Black/brown clay with some organic matter and some hydrocarbon odor.
	5			
	6			
	7			Test pit depth terminated at 7 feet.
	8			7.5 feet: Lysimeter installed to this depth at 45 degree angle.

ReTeC



Test Pit Plan

Project Texaco Site Port Arthur Test Pit 3B-2 Sh 5 of 7

Date Dec. 14, 1989 Location Plot 3B Ground Elevation

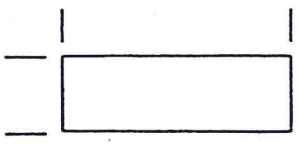
Total Depth 7 Contractor ReTeC Logged J. Evans

Equipment Used Backhoe, bulldozer

Remarks

Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
	0			0 - 1 feet: Dark brown, fine sand/silt with black organic matter.
	1			
	2			2 foot: Pockets of tan clay.
	3			3 foot: Old 3/4" PVC conduit was traced to 25 feet from sample station, but then stopped.
	4			3 - 7 feet: Black and brown stiff clay with high plasticity; some wood and grass.
	5			
	6			6 feet: Hard, white, coarse silt/sand mixed with stiff clay.
	7			Test pit depth terminated at 7 feet.
	8			7.5 feet: Lysimeter installed to this depth at 45 degree angle.

ReTeC



Test Pit Plan

Project Texaco Site Port Arthur Test Pit P87-2E Sh 6 of 7

Date Dec. 14, 1989 Location Plot 2 Ground Elevation

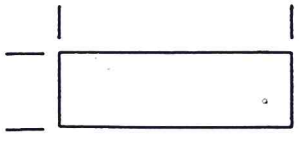
Total Depth 7 Contractor ReTeC Logged J. Evans

Equipment Used Backhoe, bulldozer

Remarks

Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
	0			0 - 1 feet: Brown silt/sand with black organic matter.
	1			1 - 7 feet: Dark brown clay, moderately stiff; pockets of oil/tar; wood and grass.
	2			
	3			3 foot: Isolated water was encountered. This may be due to channeling from the old lysimeter station. 3/4" PVC conduit as well as tubing from old lysimeter could not be found.
	4			
	5			
	6			
	7			Test pit depth terminated at 7 feet.
	8			7.5 feet: Lysimeter installed to this depth at 45 degree angle.

ReTeC



Test Pit Plan

Project Texaco Site Port Arthur Test Pit 7B Sh 7 of 7

Date Dec. 15, 1989 Location Plot 7B Ground Elevation _____

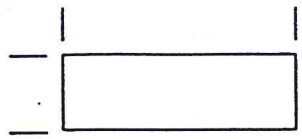
Total Depth 8 Contractor ReTeC Logged J. Evans

Equipment Used Backhoe, bulldozer

Remarks _____

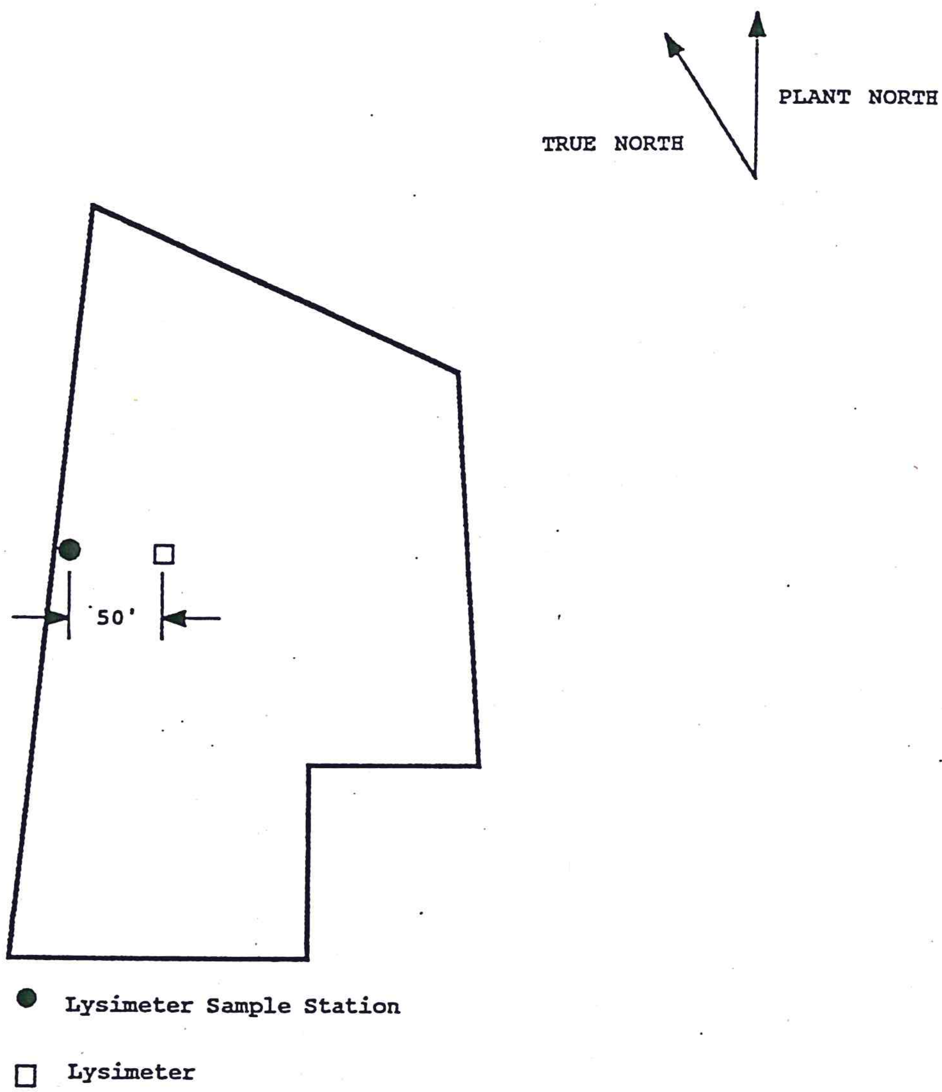
Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
	0			0 - 1 feet: Fine brown sand with black organic material.
	1			1 - 8 feet: Black and tan clay, stiff, high moisture; black organic material.
	2			
	3			
	4			
	5			
	6			
	7			7.5 feet: Lysimeter installed to this depth at 45 degree angle.
	8			Test pit depth terminated at 8 feet.

ReTeC



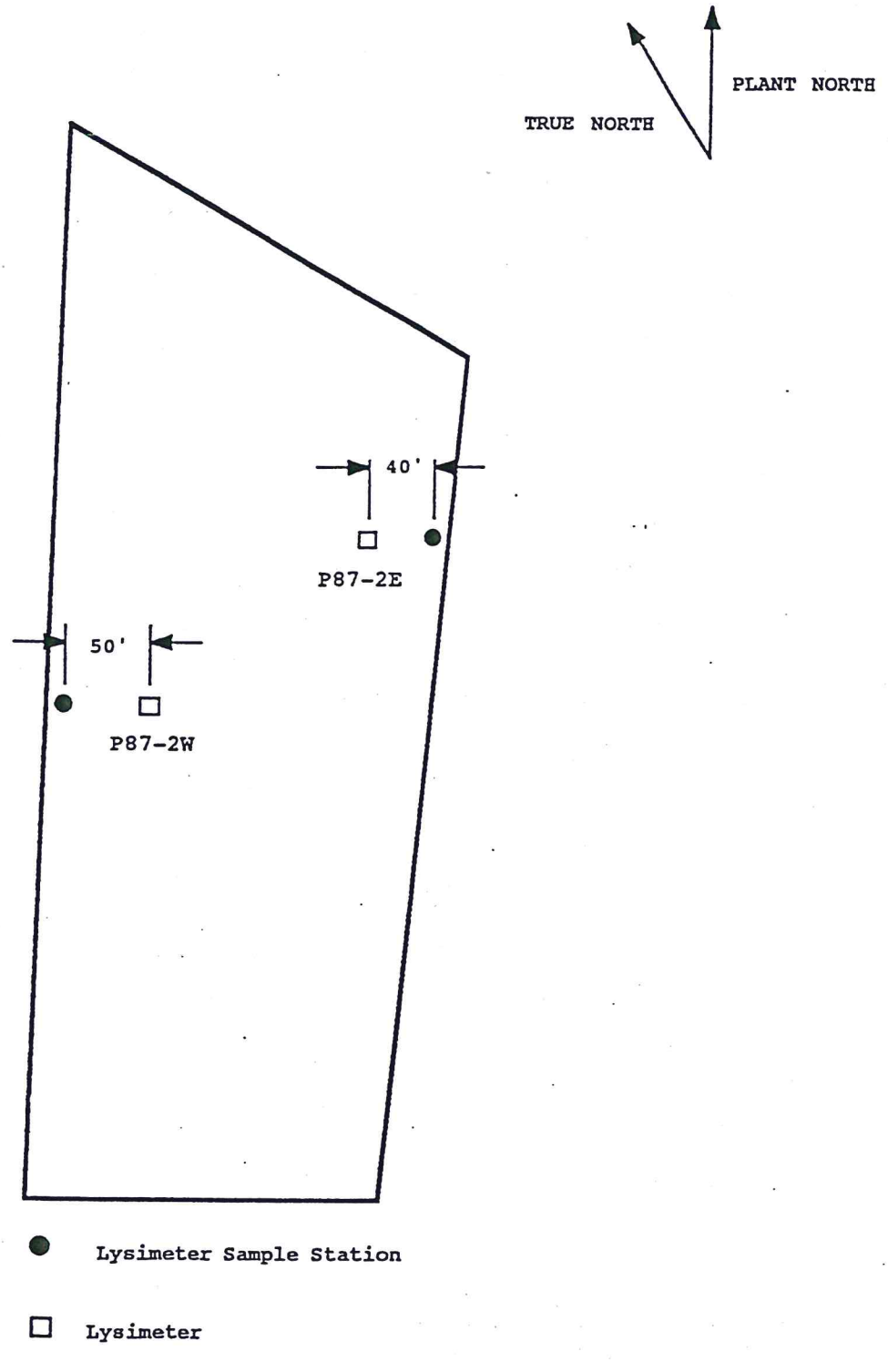
Test Pit Plan

REIEC



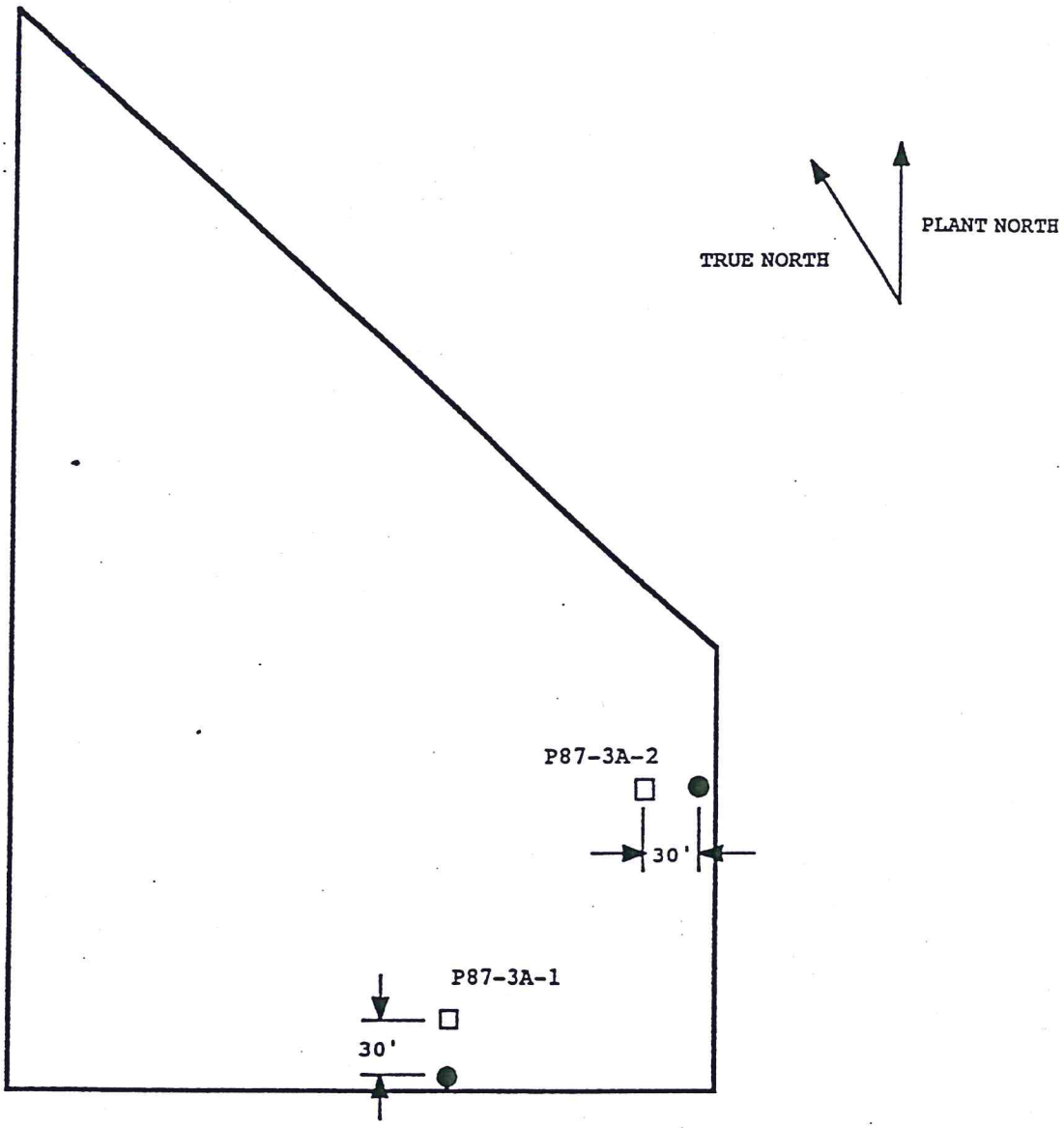
Plot 1 Lysimeter Location

RETEC

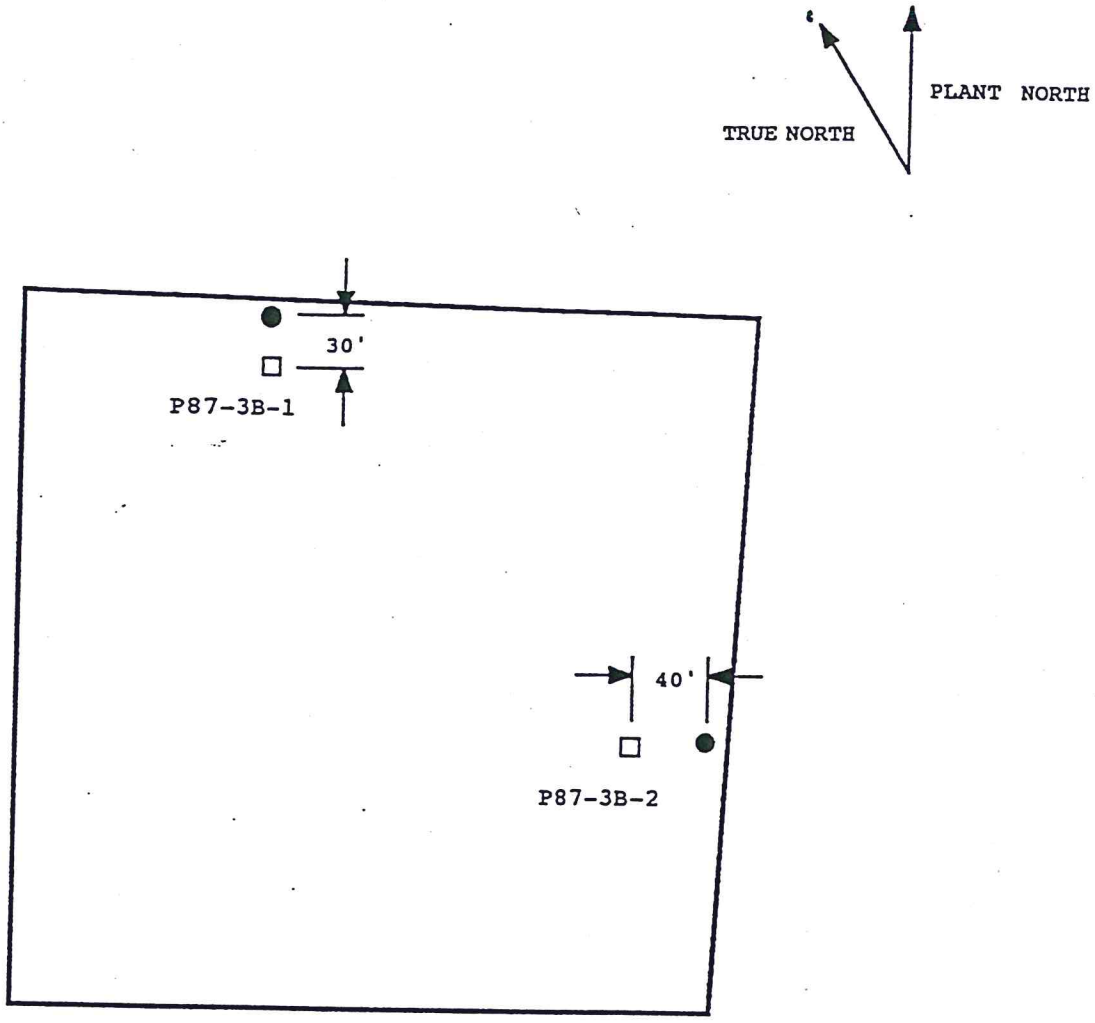


Plot 2 Lysimeter Locations

RETEC

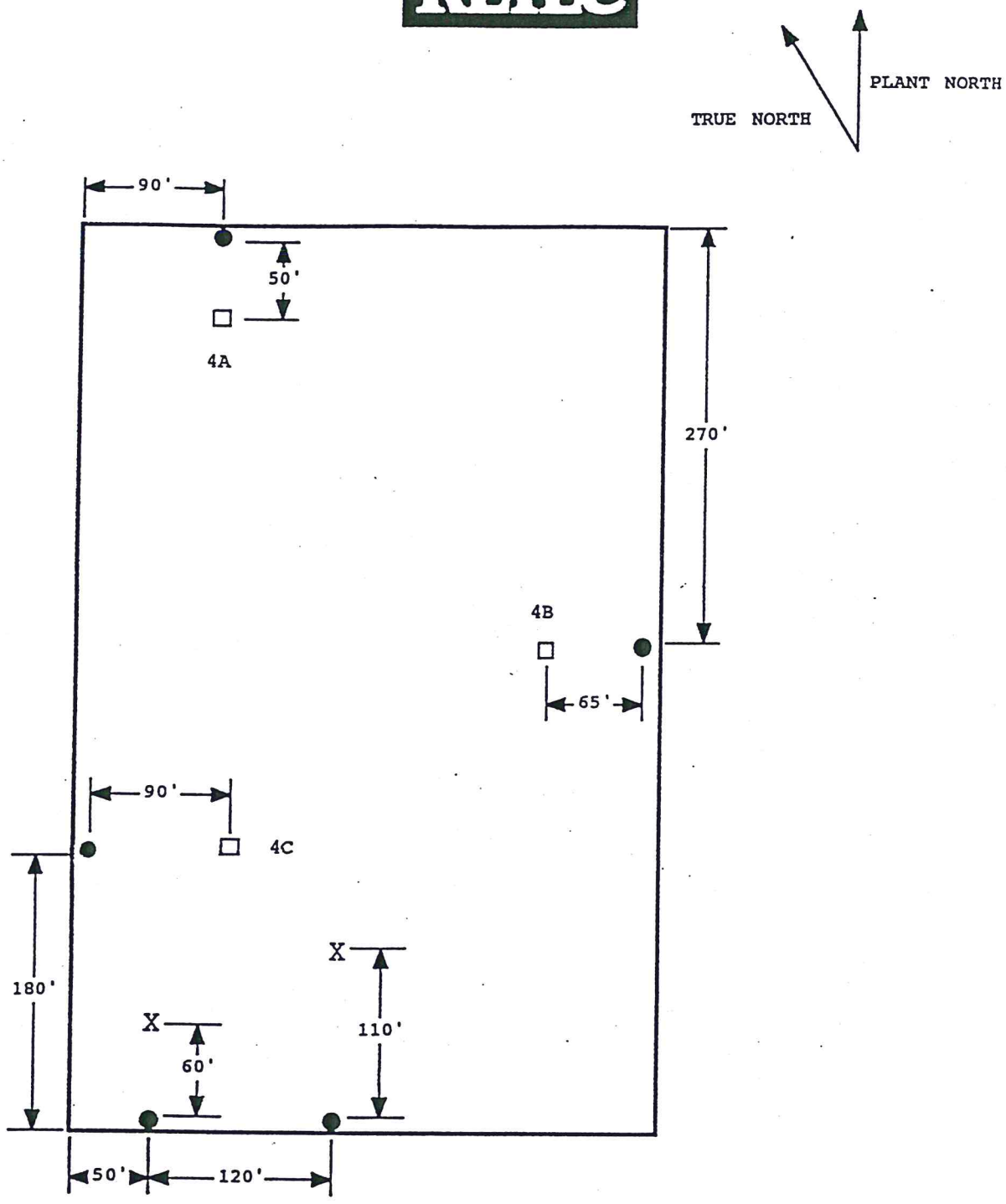


Plot 3A Lysimeter Locations



Plot 3B Lysimeter Locations

RETEC



● Lysimeter Sample Station

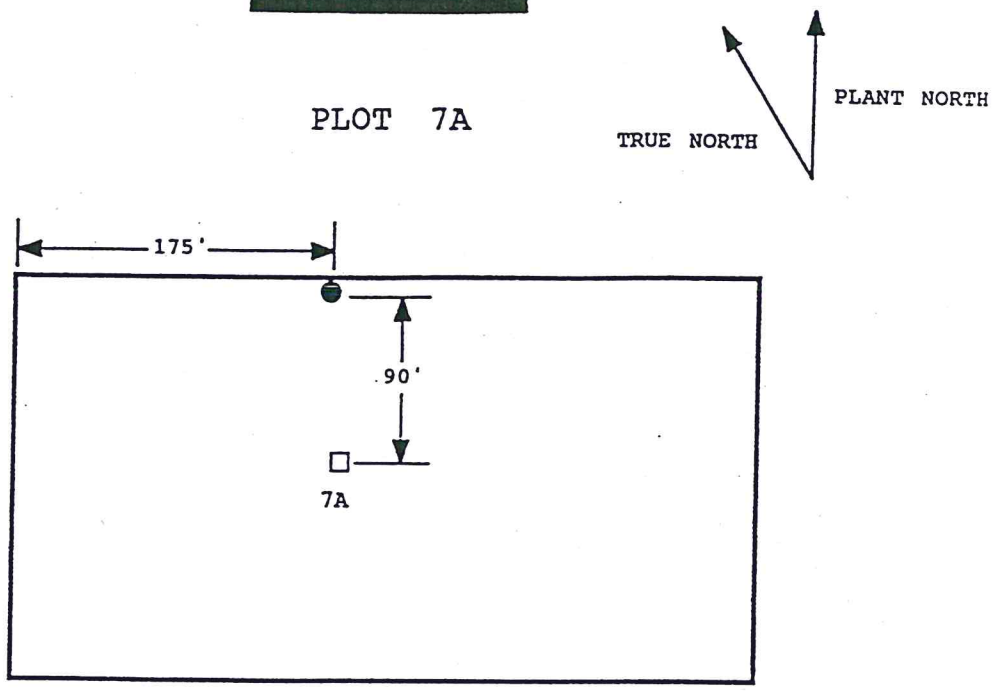
□ Lysimeter

X Inactive Lysimeter

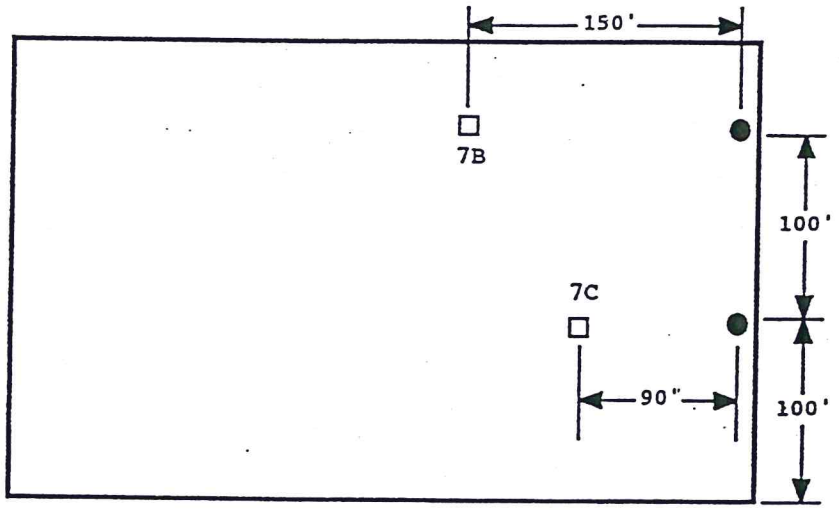
Plot 4 Lysimeter Locations

RETEC

PLOT 7A



PLOT 7B



● Lysimeter Sample Station

□ Lysimeter

Plot 7A and Plot 7B Lysimeter Locations

May 3, 1993

Mr. L. T. Townsend
Manager, Port Arthur Area
Star Enterprise
P.O. Box 712
Port Arthur, Texas 77641-0712

RE: Minimum Technological Requirements (MTR) Surface Impoundments

Dear Mr. Townsend:

On March 4, 1993, the Environmental Protection Agency (EPA) received your letter requesting clarification of the applicability of the new Minimum Technological Requirements (MTR) standards promulgated in the Federal Register on January 29, 1992, for existing facilities.

As stated in the rule, the new standards apply to three types of impoundments: (1) any new surface impoundment constructed after July 29, 1992; (2) existing surface impoundments that are laterally expanded after July 29, 1992; and, (3) replacement of existing surface impoundments that began after July 29, 1992. Since the impoundments at Star Enterprise were in existence and operating prior to January 29, 1992, these standards would apply to the impoundments, only if, they are laterally expanded or replaced in the future.

The ruling also exempts certain replacements of permitted surface impoundments, waste piles, and landfills from the new double liner and leak detection system requirements. These existing permitted units can be exempted, if the replacements meet the following conditions:

(1) If information can be provided to document that the existing unit was constructed in compliance with the design standards for double liner and leachate collection system requirements in 3004(o)(1)(A)(i) and 3004(o)(j) of the Resource Conservation and Recovery Act (RCRA) and;

(2) If there is no reason to suspect that the liner system is not functioning as designed or;

(3) If the unit has been granted a variance from the double liner and leachate collection system under 3004(o)(2), 3004(o)(3) and 3005(j) of RCRA.

A replacement unit can also be exempted from the MTR requirements, if the unit is undergoing closure and meet the conditions and safeguards listed in the new ruling.

If you have any further questions regarding this issue, please contact Michelle Peace of my staff at (214) 655-7430.

Sincerely yours,

Lydia M. Boada-Clista, Acting Chief
Oklahoma/Texas Section, RCRA Permits Branch

MRP 4/28/93
6H-PT:PEACE:mrp:04/27/93:sb:56792:STAR.MTR:TXD008097529-PE

StarEnterprise

L T Townsend
Manager
Port Arthur Area

P O Box 712
Port Arthur TX 77641 0712
409 989 7001

February 26, 1993

Re: Minimum Technology Requirement (MTR)
Surface Impoundments
EPA I.D. No. TXD008097529
TWC Permit No. HW-50188
ENV 1602, 1630

P 251 304 766
CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Ms. Laurie King, Chief
U.S. EPA Region VI
RCRA Permits Branch, TX/OK Section
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Ms. King:

This letter is in reference to the subject facilities located at our Port Arthur Refinery (PAP). Letters dated September 24, 1990, March 21, 1991 and September 24, 1991 were submitted to you concerning permit modifications and requirements for the subject facilities. The subject facilities were placed in service in 1990 and were not expanded or modified after January 29, 1992.

Each MTR Surface Impoundment was constructed (from bottom to top) with a 3 ft. deep compacted clay base; a leachate collection system; a synthetic liner and a 5 inch layer of shotcrete on the floor of the facility. The drawings can be found in the documents transmitted with the previously referenced letters.

In January 1992, new MTR standards were specified for facilities either modifying or expanding their existing facilities. The federal rules in 40 CFR Sections 265.221 and 264.221 specifically state, in Subsection (a), that these rules apply to new surface impoundments on which construction commences after January 29, 1992, later expansion of existing service impoundments on which construction commences after July 29, 1992, and replacement of existing impoundments that are to commence reuse after July 29, 1992. Our impoundments were already in existence and operating on January 29, 1992 and met the then existing MTR requirements, it is our interpretation, that these requirements do not apply to us. In the January 29, 1992 Federal Register on page 3465, the EPA made this same point and never hinted that retrofitting of existing impoundments was required.

In addition, in the February 4, 1992 Federal Register page 4175, in discussing the retrofitting required to meet MTR, EPA included a statement that supports this conclusion:

> Existing liner systems require levels of upgrading. One facility operator reported that the retrofitting process was relatively fast because their surface impoundment was already equipped with a clay liner and needed only a synthetic liner and drainage layers.

This statement contemplates retrofitting to the earlier MTR standards. This supports our conclusion that the existing impoundments, which already meet the earlier MTR requirements, do not need to be retrofitted to meet the January 29, 1992 requirements. We also understand that we will still be able to acquire a permit to operate these facilities without retrofitting the current facility to the new standards.

We would like a clarification from your office on this particular issue. Our current engineering, design and wastewater operating plans for PAP depend upon the answer to this question. Your immediate attention and response is requested and appreciated. If you have any questions, please call O. R. Marshall (409)989-7166 or W. T. Smith (409)989-7598.

Yours very truly,

STAR ENTERPRISE

L T Townsend/ajd

:orm

1-8-93

L.T. Townsend, Manager
Star Enterprise
P.O. Box 712
Port Arthur, TX 77641-0712

Re: Determination of F037 Waste
TXD008097529

Dear Mr. Townsend:

In answer to your letter of November 4, 1992, the Agency has determined that the accumulated sediments in the drainage ditches as described in the letter are not considered to be F037 listed wastes. This determination is in agreement with the Texas Water Commission determination in a letter dated December 14, 1992, which was sent to your facility.

This determination is based on the fact that the ditches in question do not manage process waters and the assumption that the hydrotest water does not contain solids or "float" that would (1) flocculate or precipitate to generate a sludge or (2) adsorb, absorb, interact or mix with the sediments in question to trigger the mixture rule.

Hopefully, this reply answers your inquiry. If you have any questions, please contact David Vogler of my staff at (214) 655-7428.

Sincerely,

Laurie King, Chief
TX/OK Section
RCRA Permits Branch

cc: Katherine Nelson, TWC, Permits Section, Industrial and Hazardous Waste Division

DV

6H-PT:VOGLER:lp:5-6790:1-8-93:J:/STARFO37.LET:FILE
TXD008097529/PERMITS
Star Enterprise

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

January 4, 1993

Mr. Ronald L. Korbini
Environmental Technologist
Star Enterprise
P.O. Box 712
Port Arthur, Texas 77640-0712

Re: Use of RFI Unit SI-17 for Fire Training
Solid Waste Registration No. 30121
Hazardous Waste Permit No. HW-50188
EPA No. TXD No. TXD008097529

Dear Mr. Korbini

This letter was prepared to document the telephone conversation of November 19, 1992. During the telephone conversation, Star requested Texas Water Commission (TWC) approval to conduct fire training activities in the RFI Unit SI-17 (Reservoir 10 Waste Consolidation Area) shown on the attached figure. According to the Star Enterprise report, Remedial Action Plan for Reservoir 10 submitted in December 1991, this area contains waste material that was consolidated prior to the effective date of the primary sludge regulations and has not been stabilized.

It is the TWC's understanding that to prepare the area for fire training activities, a concrete lined ditch would be constructed to collect runoff and all runoff would be collected and disposed of appropriately.

In addition, the TWC understands that a hazardous waste determination would be made on soil that is excavated from this area and the material would be handled appropriately, with consideration to land disposal restrictions, if the soil is actually dug out (picked up) and redeposited (placed in another location). Star may wish to consider moving (blading) the soil with a bulldozer within the RFI unit. This would not constitute a removal activity that would require determination of or trigger land disposal restrictions.

The TWC approves this activity provided that the stipulations described above are met. Please provide a report [an original and three(3) copies] to the TWC within 30 days of completion of the fire training area construction. The report should describe the construction/soil movement activities, including an explanation of

the testing, handling, treatment and final location of moved soil.

All future correspondence concerning activities with this or other Solid Waste Management Units should be forwarded to the Executive Director to the attention of Mr. Paul S. Lewis, Manager Corrective Action Section, Industrial and Hazardous Waste Division, Box 13087, Austin, Texas 78711-3087.

If you have any question about the contents of this letter please contact Mr. Jay Carsten of the Corrective Action Team at (512) 908-2348.

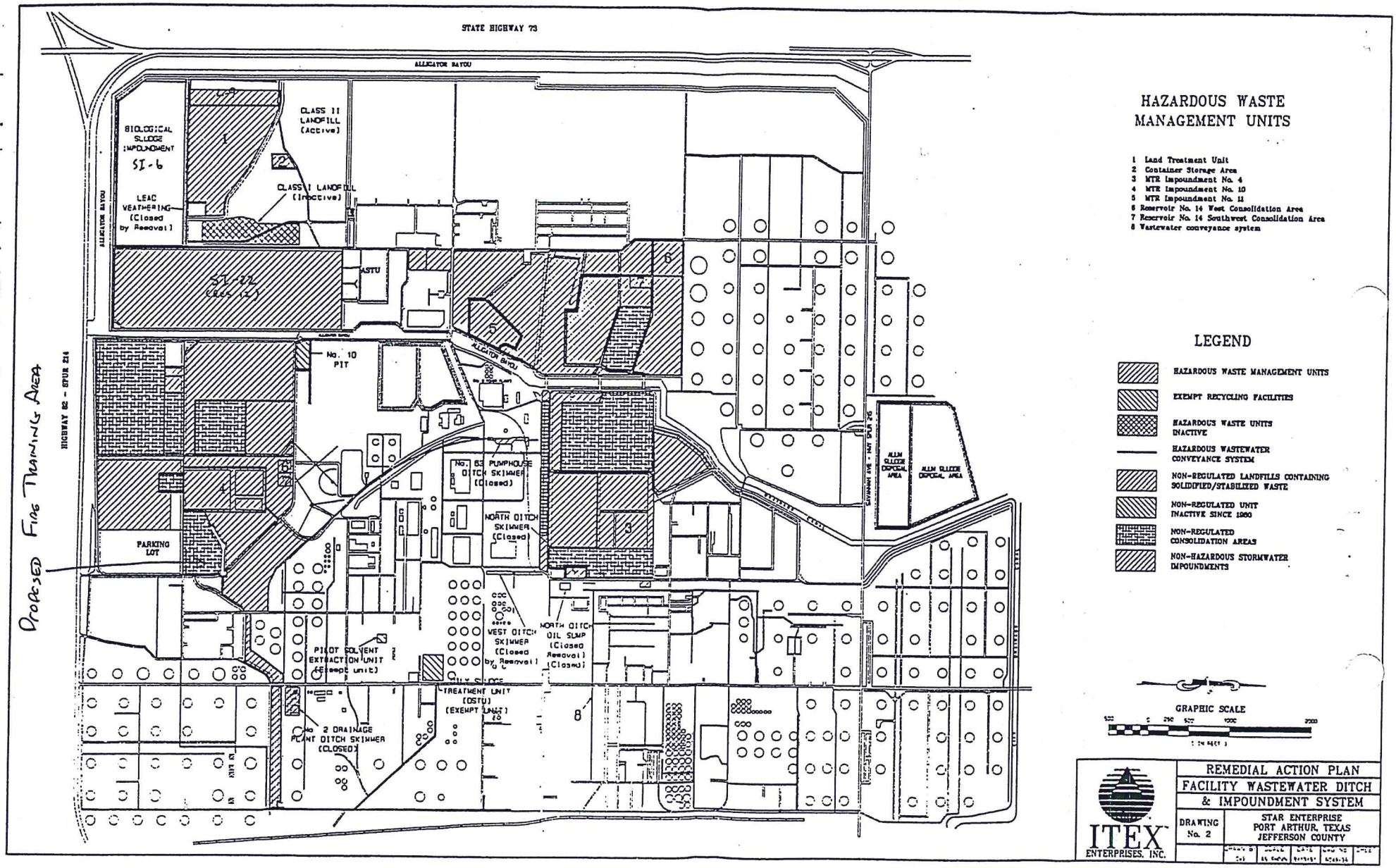
Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial & Hazardous Waste Division

PSL:jc/jwa

cc: John Rinehart, EPA Region VI - Dallas
John Wilder, District 6 - Beaumont
John Williamson, I&HW Div., Permits Section
Teres Jimenez, I&HW Div., Permits, Groundwater Section
Deanna Epperson, I&HW Div., Enforcement Section
Tennie Larson, I&HW Div., Corrective Action Section (CA-305)



Proposed Fire Training Area

HAZARDOUS WASTE MANAGEMENT UNITS

1 Land Treatment Unit
2 Container Storage Area
3 MTR Impoundment No. 4
4 MTR Impoundment No. 10
5 MTR Impoundment No. 11
6 Reservoir No. 14 West Consolidation Area
7 Reservoir No. 14 Southwest Consolidation Area
8 Wastewater conveyance system

LEGEND

- HAZARDOUS WASTE MANAGEMENT UNITS
- EXEMPT RECYCLING FACILITIES
- HAZARDOUS WASTE UNITS INACTIVE
- HAZARDOUS WASTEWATER CONVEYANCE SYSTEM
- NON-REGULATED LANDFILLS CONTAINING SOLIDIFIED/STABILIZED WASTE
- NON-REGULATED UNIT INACTIVE SINCE 1980
- NON-REGULATED CONSOLIDATION AREAS
- NON-HAZARDOUS STORMWATER IMPOUNDMENTS

GRAPHIC SCALE

ITEX ENTERPRISES, INC.

REMEDIAL ACTION PLAN
FACILITY WASTEWATER DITCH & IMPOUNDMENT SYSTEM

DRAWING No. 2

STAR ENTERPRISE
PORT ARTHUR, TEXAS
JEFFERSON COUNTY

Rinehart

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

November 24, 1992

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. L.T. Townsend
Manager, Port Arthur Area
Star Enterprise
P.O. Box 712
Port Arthur, Texas 77640-0712

Re: RFI Report (Revision I) for Port Arthur Refinery
Notice of Deficiency
Solid Waste Registration No. 30121
Hazardous Waste Permit No. HW-50188
EPA Id. No. TXD008097529

Dear Mr. Townsend

The Texas Water Commission (TWC) has reviewed the RFI Report (Revision I) for the Star Enterprises Port Arthur facility that was submitted in November 1991. The report contains the results from investigative work that was performed on industrial solid waste management units (SWMU) located at the facility. During review of the report, numerous data gaps were noted that will require additional Phase II sampling to fully characterize the extent of contaminated soil and groundwater. However, the objectives and scope of Phase II sampling will not be comprehensively addressed in this letter. This letter was prepared primarily to address deficiencies of data presentation in the RFI Report (Revision I). Complete data presentation is essential to identify the requirements for a Phase II investigation of each SWMU. In addition, this letter contains suggested guidelines to expedite the review of RFI documents and implementation of subsequent RFI activities.

Deficiencies in RFI Report (Revision I)

This section outlines deficiencies that need to be addressed in a revision to the RFI Report (Revision I). The report lacks sufficient graphical presentation of soil and groundwater analytical data. Additional graphical presentation of data is needed to determine the nature and extent of a potential release

from each SWMU. A release from each SWMU is assessed by the TWC on a unit by unit basis. Geological and analytical data should be presented so that this can be accomplished without looking in several separate sections of the report. Graphical presentation of data should also include contiguous units that illustrate area or regional trends when appropriate. Examples of this could include a facility wide map to establish background concentrations for lead and chromium or an area wide map presenting groundwater analytical results for several contiguous SWMUs.

In summary the objectives of the graphical presentation of geological and analytical data should be to 1) illustrate the extent of soil and groundwater contamination in the vicinity of each SWMU, 2) evaluate data trends in each area and facility wide, and 3) support conclusions made in the text.

The following items should be addressed in a revision to the RFI Report (Revision I):

1. Provide a boring log for each well/boring that includes lithology, well construction, water levels and OVA readings in one graphic presentation instead of on several different graphical presentations.

2. Modify the geologic cross-sections to include a symbol for the potentiometric surface/water table and a symbol indicating the interval that black stained soil and free oil were observed in a well/boring. In addition, extend cross-sections to include Alligator Bayou and the Drainage Canal where appropriate. Include the water level and bottom of the creek and/or drainage canal. Waste/soil borings drilled within the SWMU should be included on cross-section lines where appropriate.

   Consider the use of fence diagrams to illustrate the spatial variation in stratigraphy and extent of stained soil and free oil. Include a discussion of areas where the confining unit underlying the first water-bearing zone thins significantly.

3. Construct an isopach map from all boring logs (include waste borings drilled in SWMUs) that illustrates the thickness of black stained soil and free oil.

4. Construct area wide contaminant isopleths maps for quarterly groundwater analytical data. Key analytical constituents (ie. benzene, lead) can be selected for the maps. The isopleth map should include data used to draw the isoconcentration lines. Describe changes in the maps from subsequent quarters and discuss statistically significant increases or decreases in results.

5. Construct facility wide contaminant isopleths maps (1" = 400 ft.) to illustrate the distribution of lead and chromium in soil (include samples collected in background locations if available). A map of this type may be constructed by depth interval or based on lithology, as appropriate. Computer aided contouring of lead and chromium concentrations should be considered. These maps could include results from sediment samples collected from the Drainage Canal and Alligator Bayou.

6. Construct cross-sections/profiles across each waste management unit that are annotated with key soil analytical results (ie. benzene, lead, chromium etc.). The cross-sections should allow for visual evaluation of analytical results with depth at each SWMU or groups of SWMUs. The figures should include at a minimum, schematic lines that denote the base of each SWMU, the potentiometric surface, and a schematic of the subsurface lithology.

   Inorganic analytical results that are posted on cross sections should highlight concentrations above background levels as determined from statistical comparisons. Borings located in the SWMUs can be projected on the cross-section lines. The distances that borings/wells are projected onto cross-section lines should be noted.

7. Construct area wide maps for BTEX and/or benzene using waste and soil sample results. The maps should contain analytical results from similar depth and/or lithologic intervals.

8. Construct tables that compare constituents detected within a SWMU to soil and groundwater samples collected at or near the boundaries of a waste management unit. This table should highlight differences between source constituents and constituents that may have been released from the SWMU.

9. Include background ranges or values in tables of inorganic analytical results and organic analytical results, if appropriate. Highlight concentrations that are significantly above background levels.

10. Construct a table that can be used to compare constituents detected in SWMUs facility wide. This table should facilitate identifying units with similar constituents. This may enable several units to be considered as a unit group and, in effect, treated as one unit.

11. Create a separate subheading, within the text describing activities for each SWMU, that discusses the results of the investigation to locate and record contamination in sediments and surface water resulting from the SWMU adjacent to

Alligator Bayou or the #7 Drainage Canal. This issue was specifically mentioned in the deficiency letter sent on March 14, 1989.

12. Utilize the large number of hydraulic conductivities obtained from slug tests to construct a facility wide map to identify areas of high permeability that may serve as conduits for hydrocarbons.

13. Annotate all maps with plant or surveying coordinates.

The cross-sections and maps required above should be constructed with the purpose of characterizing the distribution of contaminants. Conclusions presented in the text should be supportive of the contamination evidence illustrated in the figures.

Guidelines to expedite review of RFI documents

The RFI Report (Revision I), dated November 1991, grouped the 30+ SWMUs on the Port Arthur facility into seven separate areas. It appears that the units were grouped according to similar waste characteristics, proximity and by similar hydrogeologic conditions. In order to expedite the review process and implement corrective measures that will be protective of human health and the environment, the TWC proposes that separate RFI documents be submitted for each area. This should include revising the RFI Report (Revision I) and implementing this organization in subsequent RFI documents (ie. Phase II RFI Workplans, CMS etc.). The TWC proposes that the SWMUs be further consolidated and subdivided into the following five areas:

1) The Southwest Corner of the Facility (9 units).

2) The Western Edge of the facility (2 units).

3) The Southern End and South-Central Portion of the facility (9 units).

4) The North Central and Northern Portion of the facility (9 units).

5) The Eastern Portion of the facility (2 units).

Facility background information should be included in each RFI report and subsequent RFI documents so each document can stand alone. The TWC suggests that subsequent phases of work build on the revised RFI report. This can be accomplished by removing and inserting updated pages as appropriate following each phase of work. A chronology of site activity and a summary of pertinent

correspondence should be included in revisions of each RFI report as it expands. This will result in a report for each area that utilizes all historical data and expands as the site investigation and remediation progresses.

Since the boundaries of the 30+ SWMUs on the facility have changed over the years of operation, the TWC will consider a proposal to group SWMUs within each of the five areas. Units that are grouped together should contain similar waste streams as determined from source characterization sampling and be contiguous.

Review of the RFI Report (Revision I) would be greatly enhanced if the text in the report was reorganized so the operational history, waste characterization, release evaluation and conclusions are discussed under a heading for each SWMU, rather than each SWMU discussed under a heading for operational history, waste characterization, etc. As discussed above, a release from a SWMU is evaluated on a unit by unit basis. All the text for a SWMU should be consolidated in one section of the report so evaluation of a release from a unit can be performed accurately and efficiently.

Similarly, review of the report would also be enhanced if the report was reorganized so that figures (11"x17") directly pertinent to the text are positioned to immediately follow the text reference. Facility wide large format (2'x 3') figures should be placed in pockets in the back of the report. Unless tables are directly necessary to support statements in the text, they can remain in the back of the report.

General Comments

The TWC suggests, that after the data presentation deficiencies discussed above are addressed and the suggested guidelines are implemented, Star reconsider the recommendations made in the RFI Report (revision I). The recommendations should address complete determination of the extent of contaminated soil and groundwater, including an investigation for off-site contamination if analytical results indicate contaminated soil or groundwater at or near property boundaries. Enclosed is a partial list of data requirements that will be necessary for a Phase II investigation of each SWMU. Additional items may be identified when a complete presentation of the data is submitted in a revision of the RFI Report (Revision I).

As you are probably aware, the TWC is in the process of developing risk based clean up levels for soil and groundwater. Currently Texas requires remediation of soil and groundwater affected by a release from a SWMU to background concentrations. For many constituents this will change when the risk reduction rules are

promulgated. However, even after the rules are promulgated, the TWC will require that the nature and extent of contaminated media be assessed and compared to background levels. This is necessary to adequately define the vertical and horizontal extent of any release to soil or groundwater. This will be the objective of investigative activities performed on SWMUs at the facility. Recommendations for collecting additional data in a Phase II investigation should be made with this objective.

Within 30 days from the date of this letter, Star shall provide the TWC with a proposed date for submittal of a revision to the RFI Report (Revision I) which adequately addresses the items discussed herein. Once a schedule for completion of the revised RFI Report is agreed upon and the report revised, an original and three copies of the second revised report should be submitted. All copies of the revised report and future corrective action correspondence should be forwarded to the Executive Director of the TWC, to the attention of Mr. Paul S. Lewis, Manager Corrective Action Section, Industrial and Hazardous Waste Division, Box 13087, Austin, Texas 78711-3087.

If you have any questions concerning the corrective action process or the contents of this letter please contact Mr. Jay Carsten of the Corrective Action Team at (512) 908-2348.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial & Hazardous Waste Division

jc

Enclosure

cc: John Rinehart, EPA Region VI - Dallas
John Wilder, District 6 - Beaumont
John Williamson, I&HW Div., Permits Section
Teres Jimenez, I&HW Div., Permits, Groundwater Section
Deanna Epperson, I&HW Div., Enforcement Section - Austin
Tennie Larson, I&HW Div., Corrective Action Section (CA-191)

STAR ENTERPRISES PORT ARTHUR REFINERY

Partial Phase II RFI Technical Requirements

1) Groundwater monitoring wells should be located in the vicinity of each SWMU so that wells are spaced approximately 200 to 300 ft. apart along the perimeter of the unit. Wells should be completed and sampled according to the applicable technical requirements described in items 2 and 3.

2) Many of the groundwater water monitoring wells installed in the first water bearing zone are completed at a depth inappropriate to detect a floating hydrocarbon layer. The screen placement could also result in an inaccurate assessment of dissolved constituents. Monitoring wells should be installed to resolve this issue.

3) Analyses of soil samples collected from wells/borings located at the perimeter of each SWMU do not fully characterize the potential for release from each unit. Sufficient soil samples should be selected from each well/boring to meet the following sample interval criteria:

   a) soils above the static water level in the vadose zone;

   b) soils with the highest HNU/OVA readings, with visible black staining, and where free floating hydrocarbons was observed;

   c) soils at or slightly below the base of the SWMU; or at a depth to define the vertical extent of potentially contaminated material as determined from visual examination and screening with the OVA. (ie low or no OVA readings.)

   d) Subsequent to meeting the soil sampling criteria described above, additional soil samples should be collected so there is approximately five feet between samples as required in the permit in Provision IX.C.2.c.(1).

   In the Phase I investigation, soil samples were collected from a transmissive portion of the first water-bearing zone that underlies the zone of contamination as determined from visual observation and OVA readings. These sample results may be useful in fulfilling criteria 3c and 3d above.

4) Background wells unaffected by activity of SWMUs appear to not have been installed. Wells installed upgradient of the SWMU but downgradient of another unit may not be considered background wells.

5) Sediment samples have not been collected from soil on the banks of Alligator Bayou and the #7 Drainage Canal adjacent to SWMUs. Sediment samples may help to evaluate a release to surface water. Similarly, surface water samples may help to evaluate a release to Alligator Bayou and the drainage canal.

6) Free oil was reported in at least one well at the southwest facility boundary. Additional work should address defining the extent of free phase organics when detected and include plans for the installation of off-site wells when contaminated groundwater is identified at a facility boundary.

7) Historical aerial photographs illustrating the boundaries of each SWMU over time were apparently utilized to describe the operational history and delineation of each unit. Original quality copies of these photographs with interpretation should be included in the RFI Report.

8) The facility permit requires that a topographic map at a scale of 1" = 200ft be constructed for the facility. This requirement apparently was not met or is not provided with the RFI Report. The topographic map included in the workplan was 1" = 600 ft. and did not contain sufficient detail to evaluate surface runoff from each unit. This may require that a large format map be constructed or that maps be constructed for each SWMU or in each area containing several SWMUs. The purpose of the topographic map is to provide sufficient detail to identify drainage pathway surrounding the unit. For this reason a more detailed map is required.

9) Construct maps to illustrate the thickness of free oil. The data should be corrected for differences between an observed thickness in a monitoring well and actual thickness in the formation (See Groundwater V28 No.1).

10) Assess the affect of seasonal and tidal water level fluctuations on the distribution of hydrocarbons in the soil and groundwater.

When a Phase II Workplan is prepared it will be reviewed for completeness using the RCRA Facility Investigation Guidance (Interim Final) (EPA 530/SW-89-031) and the RCRA Corrective Action Plan (Interim Final) (EPA/530-SW-88-028).